ABSTRACT

Title of Document: PATTERN PROCESS: AN EXPLORATION OF NON-ARCHITECTONIC SEAMS

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The re-purposing of a two-hundred year-old river-side factory site involves a complex set of extant, historical, and hypothetical considerations, and requires a system of strategies and tactics beyond the conventional scope of historic preservation or formal architectural analysis. The discovery of cultural patterns, both physical and social, becomes the alibi for an even broader exploration of design methodology. By reviving the etymology of "pattern" as the co-joining of autonomous pieces to create form and volume, a conceptual study of pattern and seams seeks to develop an implicit methodology that first reveals non-architectonic structural relationships, then engages these structures as determinants in the re-design of the existing built environment. The proposed framework is tested against an architectural agenda that seams historic patterns of human activity and site conditions with speculative patterns of event, process, and technology for the creation of a place expressing contemporary ideology among the continuity of living history.

Pattern Process: An Exploration of Non-Architectonic Seams

By

Jonathan T. Healey

Thesis submitted to the Faculty of the Graduate School of the
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This is dedicated to Colleen, my best critic.

ACKNOWLEDGEMENTS

To my family for their enduring support.

To Professor Ambrose, whose first semester critiques continue to instruct.

To Professor Wortham-Galvin & Dean Rockcaslte for speaking in lighting bolts.

To Colleen, who agreed to be with me through this effort and for always.

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"...If the so-called contextualism and typological historicisms are nothing but a set of opportune disguises applied to a ready-made formula - in other words, a skin on a frame that respects or disrupts the bulk of the adjacent buildings - then how can architecture remain a means by which society explores new territories and develops new knowledge?"

– Bernard Tschumi, "Six Concepts", Architecturally Speaking

Introduction to Principles

The modern industrial model of power, driven by non-renewable energy resources, threatens to expire completely during our lifetime. More than a so-called energy crisis, this problem is an opportunity to critique the contradiction of equity and industrial growth. While rapidly depleting veins of fossil fuels have created a demand for new generators of sustainable energy, proposals to shift societal activities of consumption continue to ring silent. Further complicating are the illusion of open-market access to resources, accelerating disparities between the wealthy and impoverished, and international conflicts to control consolidated power. There is no longer a question that the modern industrial model is in immediate need of fundamental change, starting with the mechanism of energy.

This thesis proposes a reconsideration of "pattern" as the necessary framework to consider the problem of industry and energy in the post-fossil fuel era. Modern industry's top-down production methods condition a typical understanding of pattern as simple two-dimensional replication. However, illustrations from market patterns to tile patterns are well within society's visual vocabulary. By exploring alternative understandings of pattern that address spatial and temporal relationships, the specific condition of energy, and the general condition of culture, may be re-imagined to address urgent concerns of input, production, and distribution.

In this circumstance, architecture's role is to create place and image that incorporate the values and aspirations of a changing societal agenda. The interpretation of pattern proposes a topological architecture, concerned with testing relationships between boundaries and developing systemic ecologies. This patterned architecture is driven by competing networks of circulation. It is constrained by the configuration of volume. A patterned architecture sponsors co-generation and co-labor, valuing both the patterns of quantifiable production and the patterns of ephemeral experienvvce.

This case study proposes an alternative energy research facility, established to innovate patterns of generation and consumption. As a non-profit public trust entity, its particular mission is to develop and disseminate fuel cell technology among its citizenry. The facilities' site, located within a 19th century factory along the banks of the Farmington River, embodies the historical struggle of industry, and the greater pattern of society's complex relationship with nature. Unavoidably displaying the potential for foundation, utility, and destruction, the geography plays a vital role in the Center's mission of active research and experiential education.

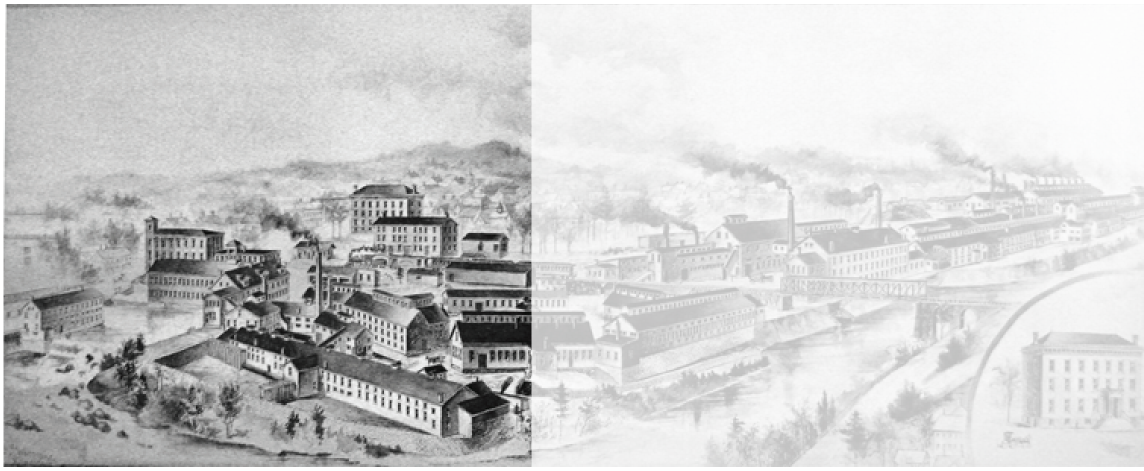


figure 1
Collins Company peak, ~1920

Contextual Complexities

The complexity of this site is rooted in an interconnected crisis of authenticity and sustainability. The creepage of suburban development continues to climb up the Farmington River Valley from the Hartford region. As the commuter community model moves out to more remote townships, the aesthetic trend is often to reduce historic landmarks to superficial iconography. The community of Collinsville, founded by Sam Collins as a self-sufficient community for his factory's workers, regularly receives proposals for new retail, office, and residential space among the factory site through a combination of renovations, demolitions, and new construction.

_sustainable settlement
At stake in this situation is an opportunity to put in to practice a culturally sustainable model of development, one that sensitively identifies and optimizes its existing resources in a long-term manner. In this case, this begins with an understanding of the geological condition of

a hard bedrock protrusion into the flow of a temperamental river.

The original Collins Axe Company, and its community of Collinsville, is defined by the simultaneously harmonious and dire partnership the factory has shared with its white-capped neighbor. In times of peace between man's intentions and nature's moods, the volume and velocity of the river was channeled to generate production. At its peak, the factory was an innovative manufacturing model, mass-producing and mass-customizing pre-sharpened tools and exporting them across the world. The river fed the factory's growth into a global company by the turn of the 20th century, colonizing the southern markets of the Americas with its machetes, marching westward with its tillers and plows.

figure 2
courtesy Canton Historical Society

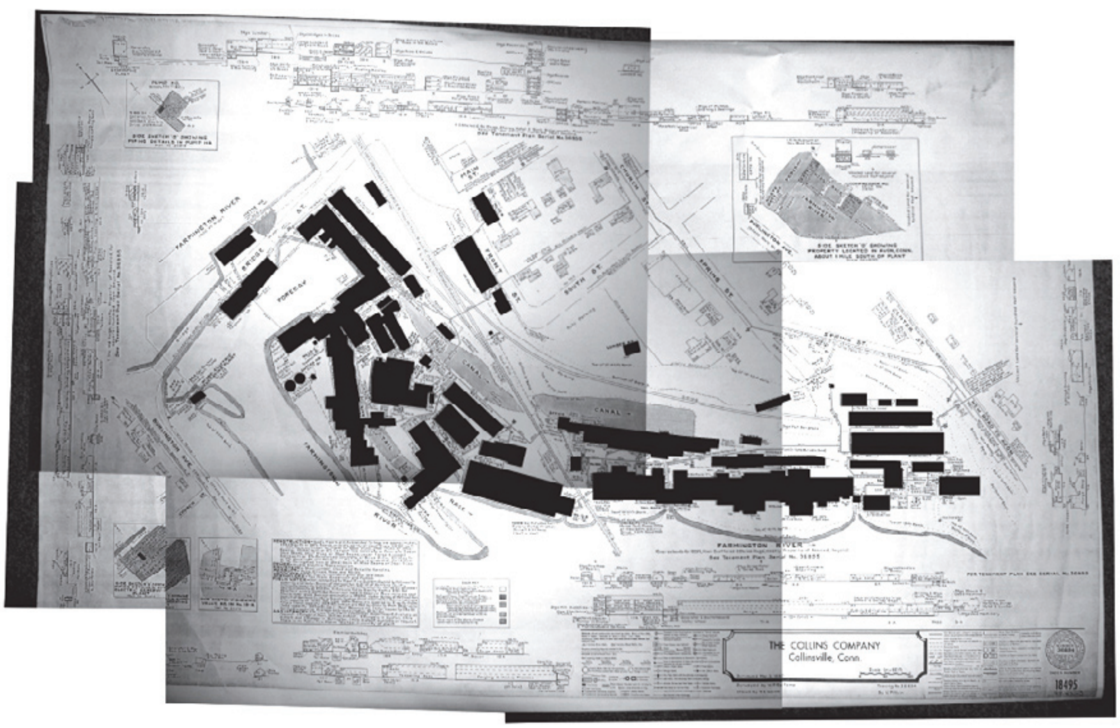
figure 3
TerraServer aerial image, ~2000

During more contemptuous times, the river would swell and rage, driving icy surges across the lowlands. Buildings were swept off their foundations, bridges were consumed, and the landscape was redrawn without a second thought of production deadlines. The final surge came with the brutal flood of 1955, which ravaged the length of the Farmington River as well as the neighboring Connecticut and Naugatuck River Valleys. Coupled with changes in international trends in manufacturing, the company was left with little to stand on and sold the last of its assets in 1966, 140 years after the factory's founders opened their doors.

Although the company has long since vacated, its physical carcass remains. The campus

figure 4
forebay at north of site, looking southwest

figure 5
insurance map, 1955
courtesy of Canton Historical Society



exists in a variety of decaying states, and finds itself sporadically occupied by a stream of tenants ranging from antique dealers, auto mechanics, to cabinet makers. The gates of the forebay and turbine pools flanking the dam remain functional, and although may still own rights to do so, they no longer generate electricity. Water continues through the channels within the factory site, passing through and under buildings. The buildings washed away in 1955 have not returned, their place now taken by thrill-seeking young trees.

By comparison, recent reports of proposals to re-occupy this land along the river with office space, retail showrooms, and new condos seems quite removed from Sam Collins's enduring sensibilities in 1826. Rather than leveraging the existing infrastructure of buildings and water, the proposals privilege the brick facades as the most prized asset. In this situation, there appears a disconnect of the image of the quaint town from its reason-for-being.

figure 6
frozen sluiceway, north edge of east bridge campus; main truck access to the left, former superintendenats office to the right

_authentic settlement

In recent years, the town has experienced a spike in popularity. Once endangered of beauraucratic extinction by the U.S. Postal Service's plan to consolidate the town services into the municipality of neighboring Canton, and threatened by the eager bulldozers of various "urban renewal" projects, the town of Collinsville is now regularly listed in various travel brochures as a "Top Ten" small American town. LaSalle Market is busy every weekend with locals and casual tourists, and the canoe and kayak shop up the river continues to thrive. Forty years after the collapse of the company, Main Street is busy, the houses on the Green boast in their understated fashion, and the cemetery on the hill is free of weeds and fallen branches.

figure 7
rails-to-trails pedestrian bridge, crossing over factory site, looking south-southeast; visible are existing Granite Building, reconstructed railroad steel truss bridge

In terms of authenticity, the crisis is first recognized as part of the global trend of ever expanding anonymous investment and inhabitation. Both a conceptual as well as aesthetic dilemma, the apparition and mechanism of globalization's white-washing effects is comprehensively vetted by Thomas Friedman's <u>The Lexus and the Olive Tree,</u> later appended by <u>The World Is Flat</u> .

figure 8
east bridge sluiceway, approximately 1910; buildings to the right demolished for tax purposes, with the exception of the brick superintendant's office

For Collinsville, the question arises whether the town's identity will wither as its defining features are re-inhabited by a model of development that only seeks to replicate the image of what once was. Michael Rock's explanation of auteurship and meaning provide an innovative structure for understanding the attraction of Collinsville.

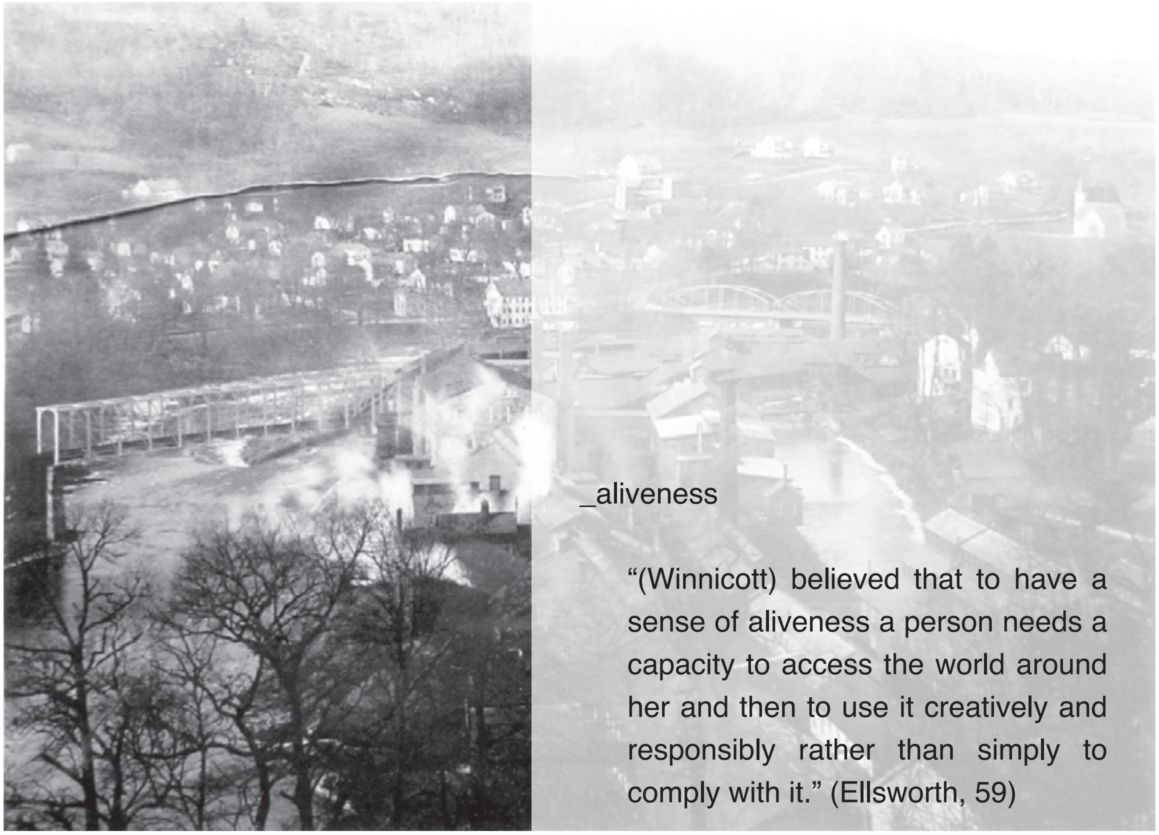
> "The auteurship, and the meaning of the work, of the director's work is

figure 9
existing site, December 2007

embedded not in the story but in the storytelling."
(Rock, "Fuck Content", 2005)

In the case of the quaint mill town, the story is the brick factory, its pools reflecting the autumn leaves, and the pint-sized bucolic urbanity it sponsored. But the virtue of its attraction lies not in the postcard view of the forebay from the opposite shore; rather, the identity of the site and the foundations of the town lie in its rigorous and conscientious attitude towards the particularities of its site. That is, the seduction of the Place of Collinsville, and ultimately its marketability, lays not in what it looks like, but in the original development's dedication to why it is where it is.

History, therefore, is not simple nostalgia. It is not tethered to the catalog of hundreds of blade templates or business transaction, nor the stories of its visitors like Frederick Law Olmstead, John Brown, or foreign emissaries. Instead, the analysis of this Place leads the design to value "History" as the continuation of the attitude that the remnants of the original built environment exude.



_aliveness

> "(Winnicott) believed that to have a sense of aliveness a person needs a capacity to access the world around her and then to use it creatively and responsibly rather than simply to comply with it." (Ellsworth, 59)

figure 10
Collinsville from Huckleberry Hill looking northwest, about 1900

What makes Place? One can create the hypothesis that certain universal concepts of relationships are inherent to humans. These include a consideration of life cycle, the mystery of birth and death, the sanctity of life, and the construct of time; that all human rituals are rooted in ceremony concerned with the negotation of earth or ocean, the sky, and man's placement between. By examining these concepts, an "enriching crisis" is revealed. That is, a liminal experience, an experience heightening the tension and celebration of man's role "in between" forces, enlivens man's experience on Earth. Place, therefor, is made by the physical manipulation of the environment to affect the perception of these relationships.

"Cities, like natural ecologies, emerge through recursive procedures. They are the cumulative result of countless individual operations repeated over time with slight variation. Difference is produced incrementally, as an effect of repetition and feedback. As an urbanistic model, an "artificial ecology" implies a complex interplay of agents, objects and process, where time is a key variable. There are ecologies of waste, development, pollution or leisure, not to mention war, politics or terrorism. Ecologies are by definition incompatible with fixed categories. What architecture might learn from ecology is a more flexible form of practice itself: a series of working concepts flexible enough to accommodate the wildly improbable demands of the contemporary city."

-Stan Allen Architects, "ecology"

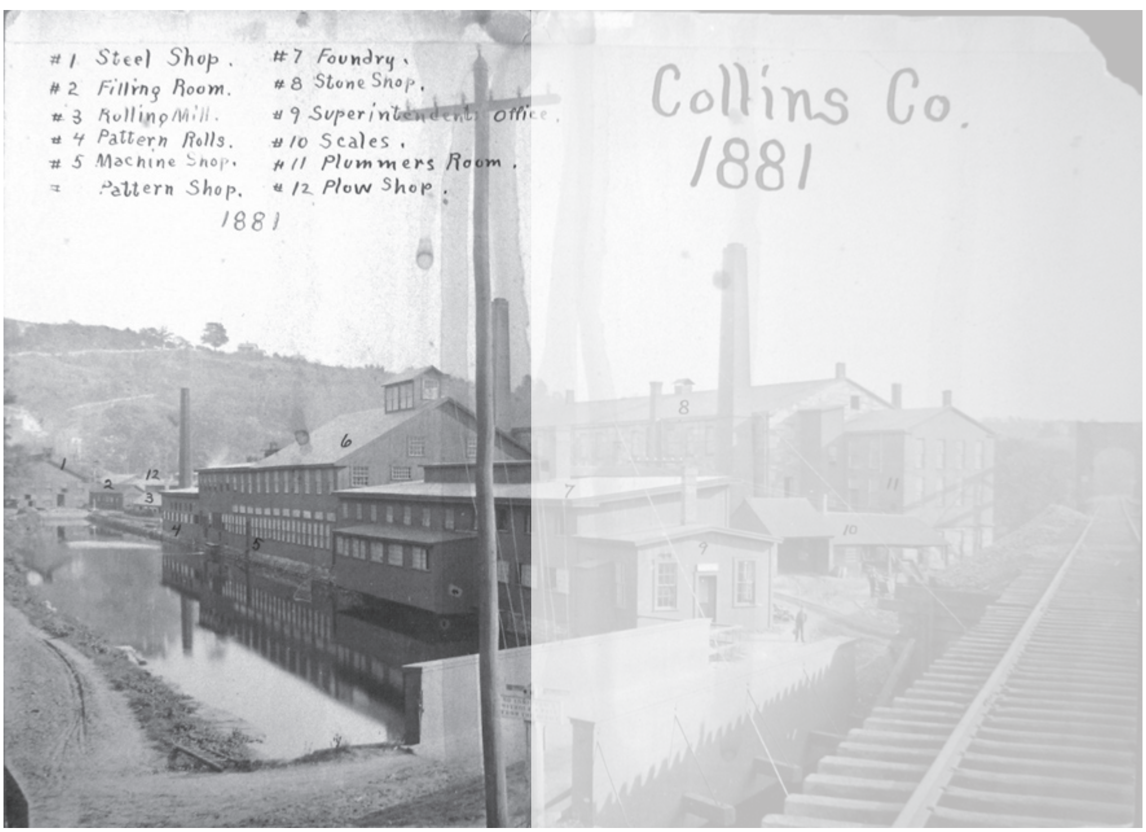
The Collins Company site sits on the north bank of the Farmington River, following the river's bend around Huckleberry Hill's protrusion into the current. The factory buildings occupy a collaged set of terraces within the historic, but now obsolete, flood plain of the river. The river runs from north to south, with the exception of the eastward jog at the crux of the factory site.

To the north, the eighteen-foot granite upper dam controls the local flow of the river and channels water to the factory forebay to the east and a small concrete hydro-electric station to the west. At the west bank of the dam, state route 179 becomes Bridge Street as it spans the river on the post-1955 concrete bridge. Further upriver are the Neapaug Reservoir, Compensation Reservoir, Colebrook Reservoir, and Otis Reservoir, which in sum have engineered away the threat of the devastating floods the site historically received. Today, the one-hundred year flood plain does not exceed the 16 foot banks of the northern edge. Ahead of the dam, old stone bases standing in the calm lake remind of the wooden covered bridge for the old New Hartford rail line.

To the west, the river banks buttress small residential hillside settlements born from the original Collins Company worker housing. Their three-block residential grid terminates with a couple churches at the meandering state route 179, Torrington Avenue then Canton Road.

To the east, above the factory site, the town extends and climbs up the slope of the hill. Closer to the factory, ground is nearly level, about 18 feet above the factory. LaSalle Market bustles with locals and tourists alike, while neighbors such as the Canton Town Hall and Collins Savings Society stoically perform their civic roles. The town green is less of a green and more of a crossroads, flanked by proper residences (still endowed with Samuel Collins-era deed restrictions against the consumption of alcohol), and terminated

figure 11
view southeast across east bridge sluicway; also visible Granite Building and original railroad steel truss bridge, 1881
courtesy of Canton Historical Society



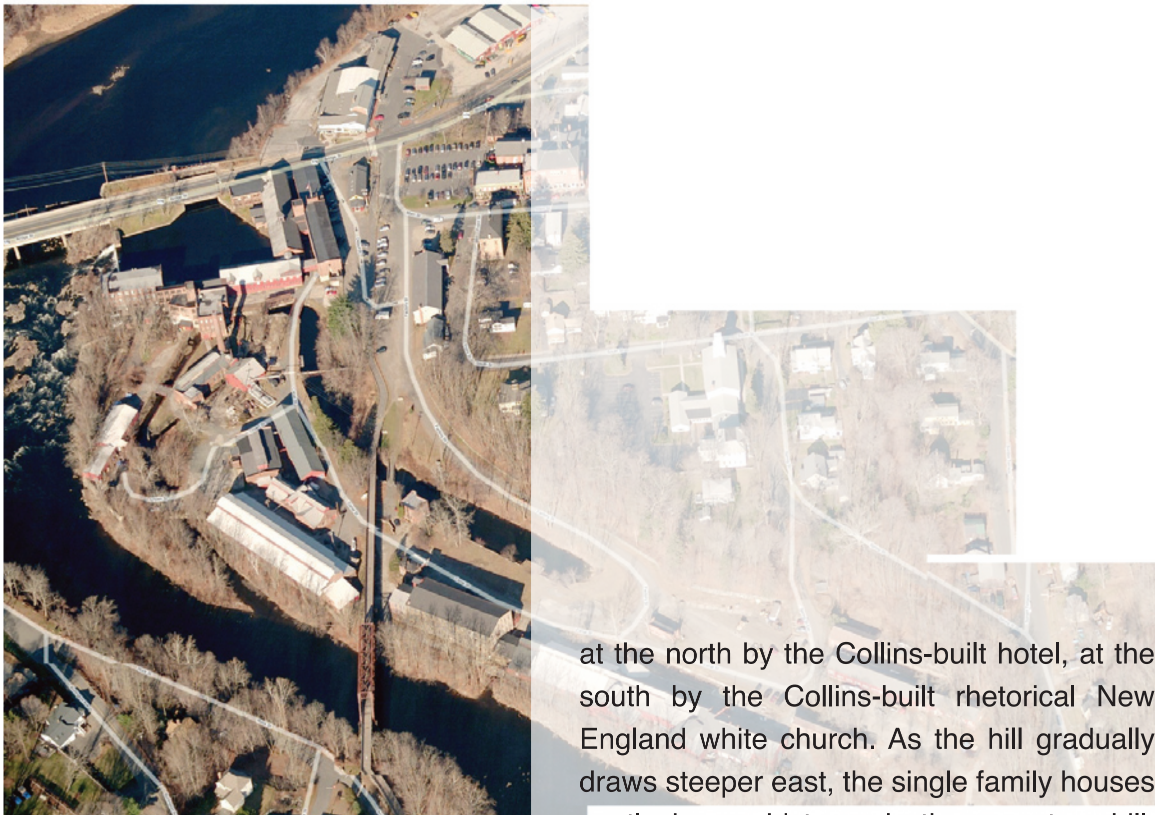


figure 14
existing site, via google maps, approximately 2005

at the north by the Collins-built hotel, at the south by the Collins-built rhetorical New England white church. As the hill gradually draws steeper east, the single family houses nestle in a grid towards the cemetery hill, itself topped by "the turtle", the still-active water-storage vessel that charges the town's fire systems and fed by the pumped channels of the factory.

To the south, the south bank quickly becomes a populated foothill of Sweetheart Mountain. The original steel truss rail bridge has since been rebuilt to connect a rails-to-trails path along the former railroad right of way. This bridge provides a pedestrian path from the neighborhood on the south bank directly to the town level towards the north end of the factory site. Further south, the river completes its diversion and continues towards Unionville, flowing through the undeveloped southern rights of the Collins Company, passing remnants of the last hydroelectric station the factory ever built.

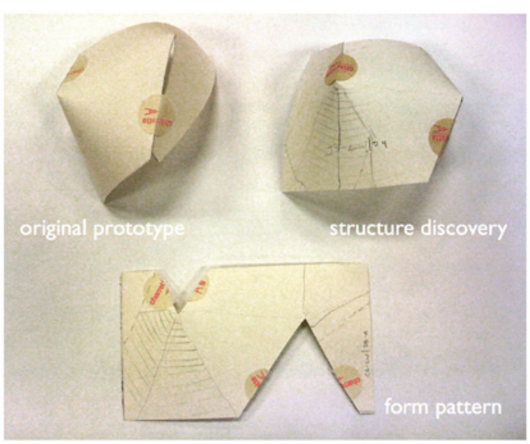
"When an English physicist seeks to construct a model appropriate enough to represent a group of physical laws, he is not embarrassed by any logical necessity. He does not aim to deduce his model from a philosophical system, nor even to put it into accord with such a system. He has only one object: to create a visible and palpable image of the abstract laws that his mind cannot grasp without the aid of this model."

- The Aim and Structure of Physical Theory, Pierre Duheme, 1954

Hypothetical Methodology

Reviving the etymology of "pattern" as the co-joining of autonomous pieces to create form and volume in dress-making, a conceptual study of pattern and seams seeks to reveal non-architectonic structural relationships, and to develop an implicit methodology that engages these structures in the design of living culture. The speculation is that, as in the design of clothing, complex forms may be understood diagrammatically and tailored as a collection of simpler forms, characteristics, and operations.

figure 13
physical pattern model study



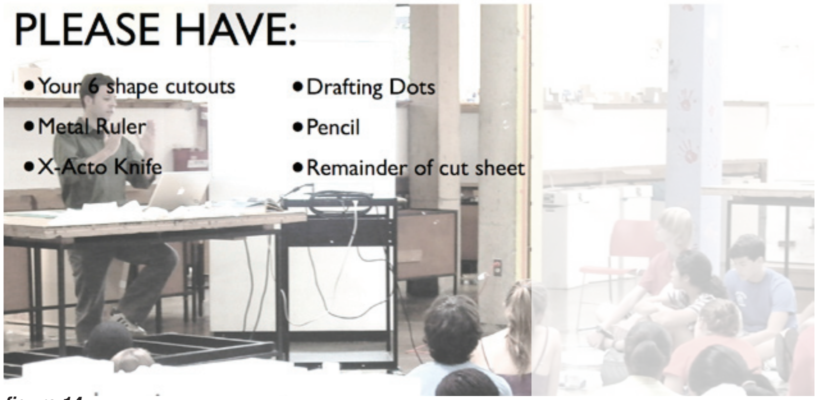


figure 14
exercise instruction set

figure 15
initial collection

While instructing in the University's of Maryland's Young Scholar's "Discovering Architecture" program, I presented an exercise to 61 high school students that introduced morphology as a design concept. The exercise was designed to reinforce the potential for variable outputs from a set of given conditions. Students were given a simple instruction set of cuts to perform on their original templates of rectangles, squares, or triangles. The students were then asked to connect the cut edges to create new volumetric forms, thereby exploring the relationship of the two-dimensional diagram to potential three-dimensional resolutions. The group explored six condition sets, thus producing 378 unique study models.

figure 16
operation limits

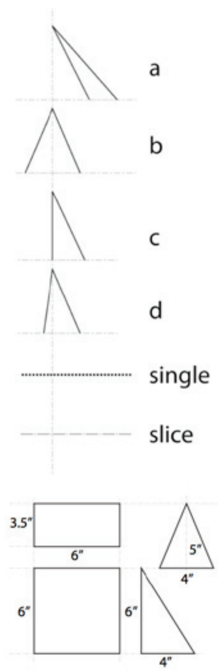
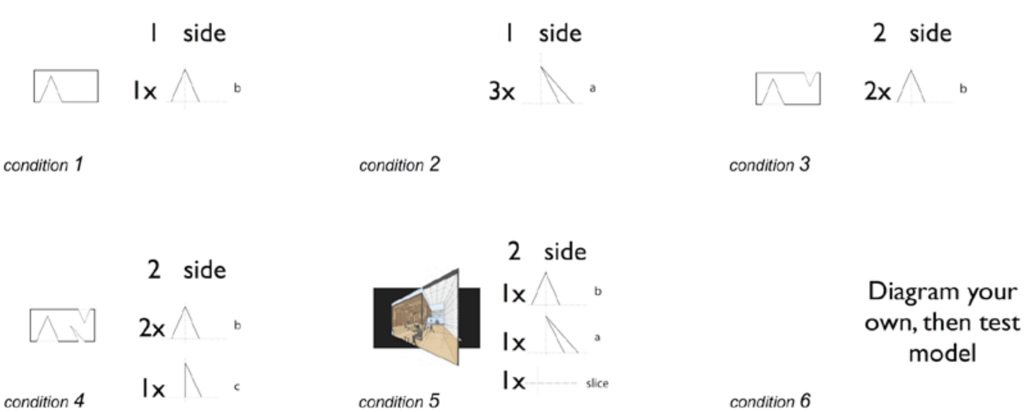


figure 17
operation conditions



These models provided a rich hypothetical data set. The investigation of the new two-dimensional diagrams latent in these complex forms lead to a process of sorting, filtering, and identifying similar properties. This process required visually surveying, physically probing, and graphically tracing as documentation techniques.

The diagramming leads to an analysis of the forms' internal structures, translated to two-dimensional line drawings. The graphic analysis of the patterned forms reveals hierarchical systems internal to the complex models. Visible are the effects of dominant relationships, like the cuts, on affected relationships, such as the secondary creases and lines of rigidity.

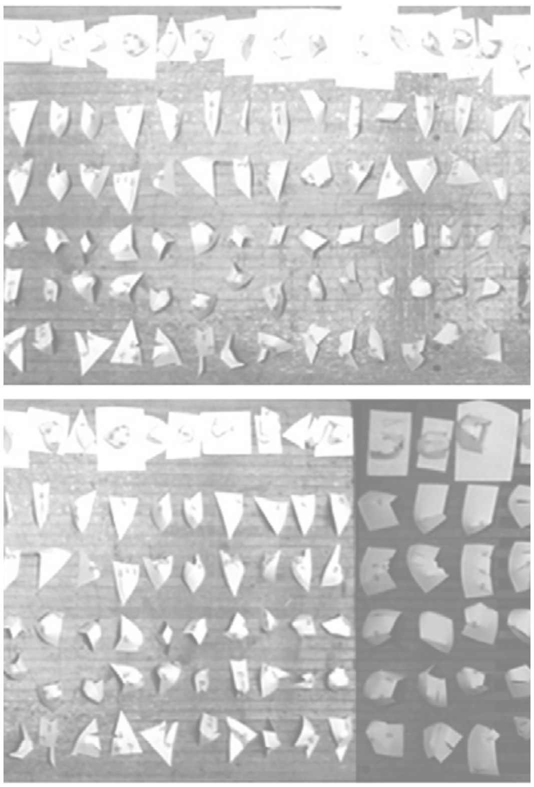


figure 18
complete set of versioned models

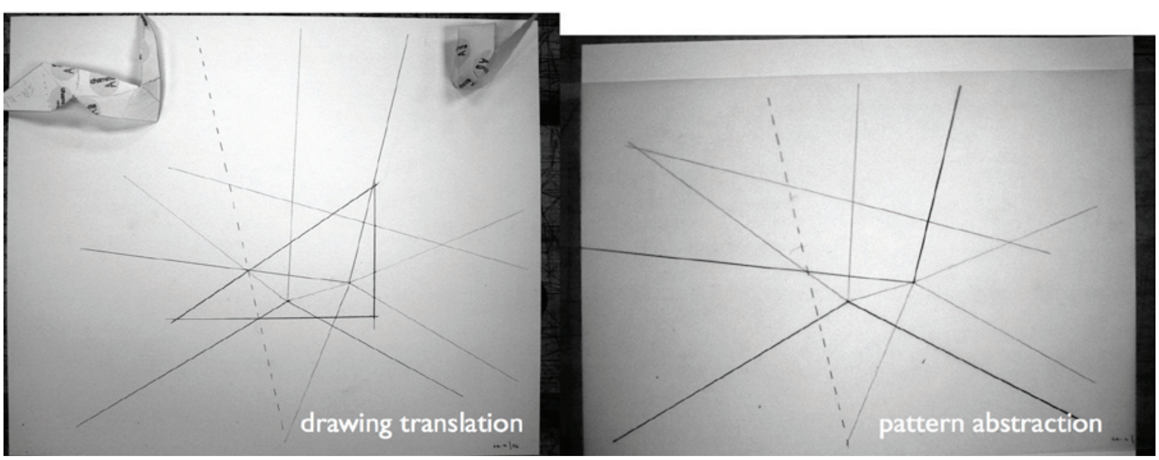
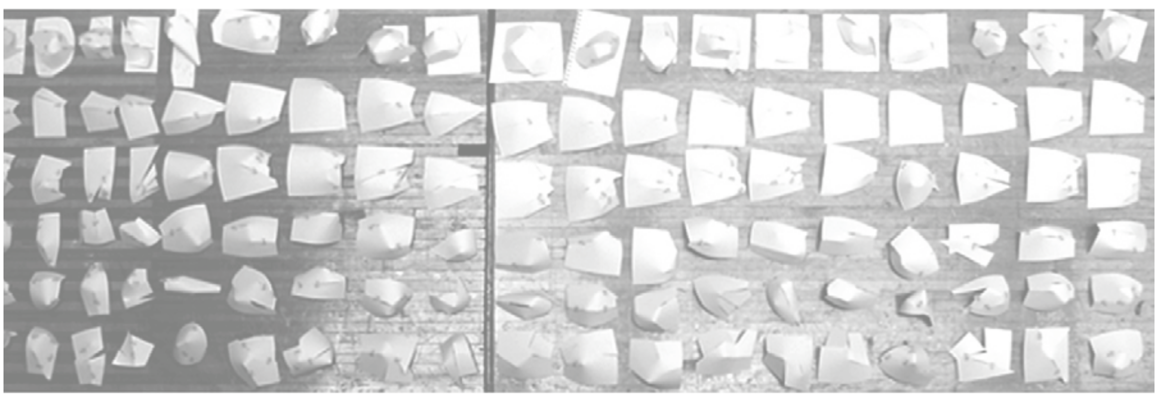
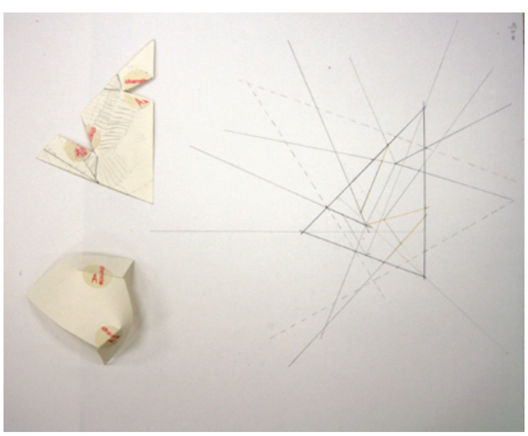
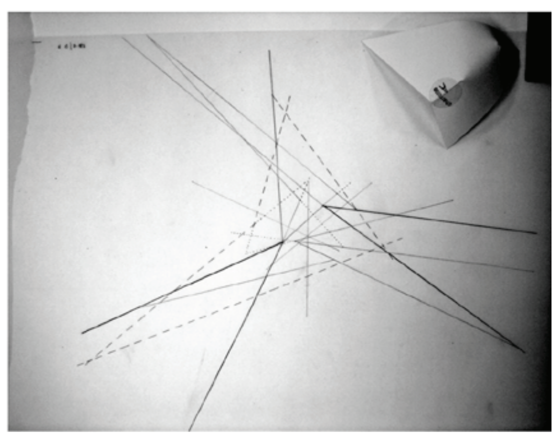


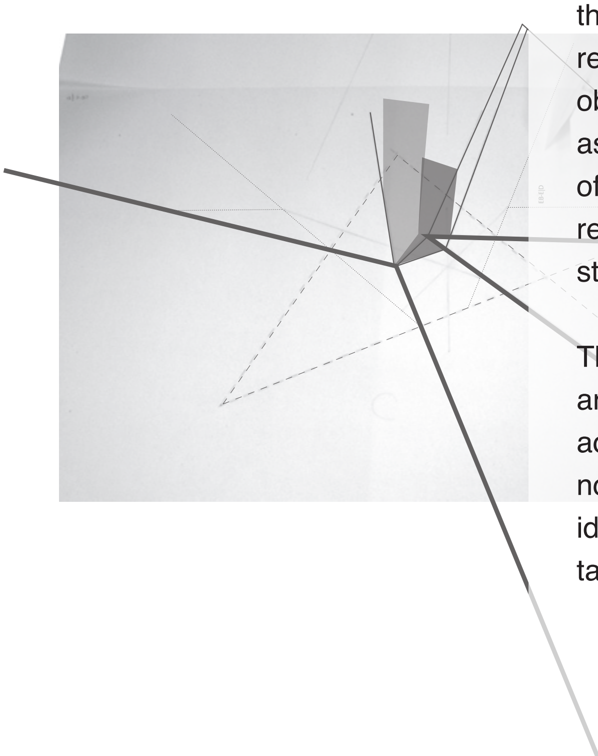
figure 19
graphic analysis translations

figure 20
observed seam variations





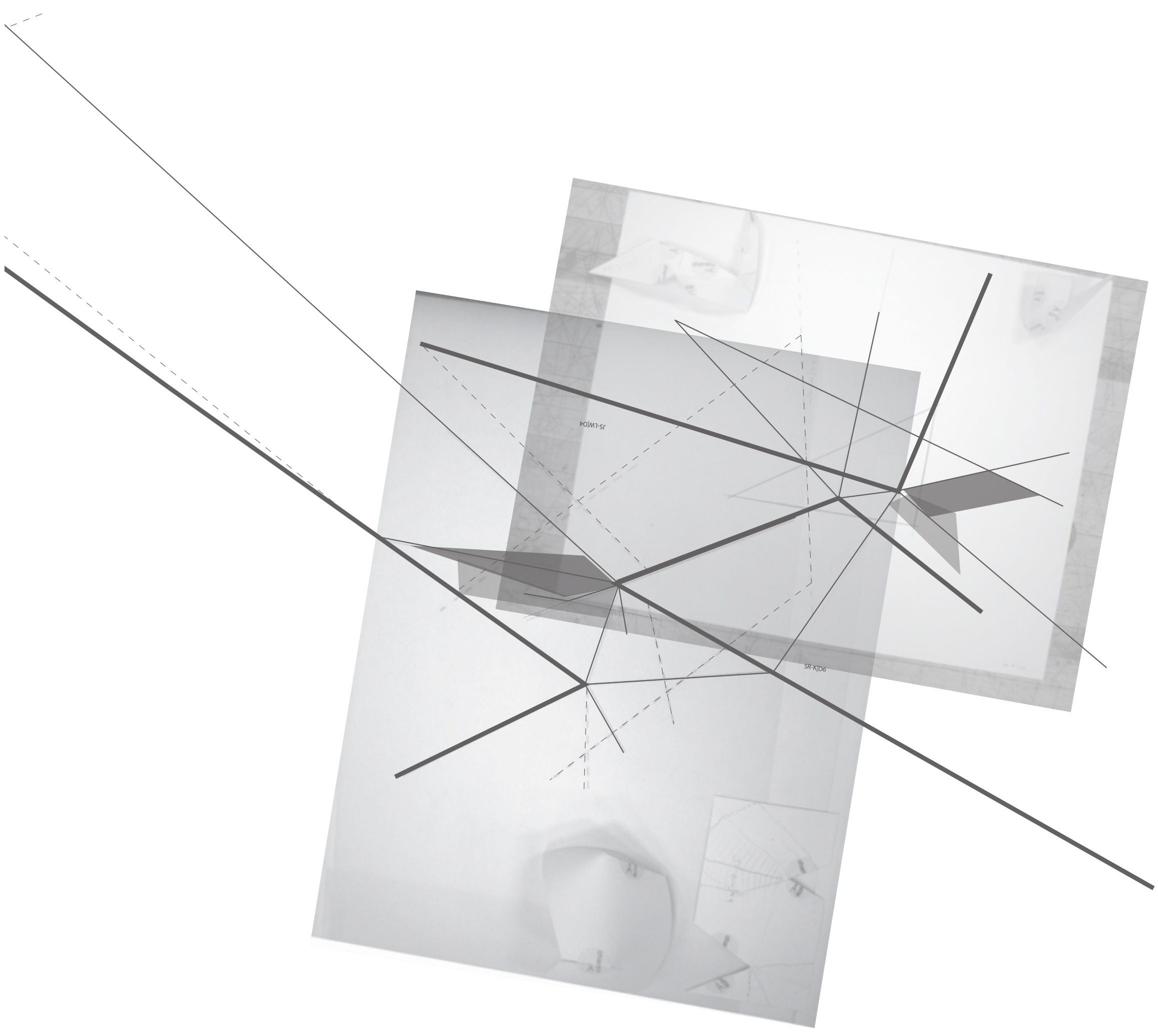


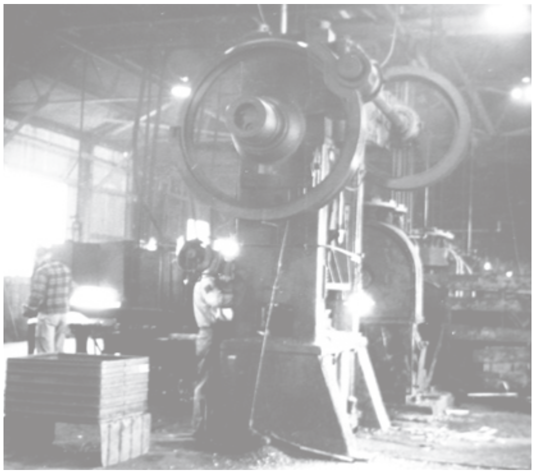


Through the abstraction of the analysis, there emerges the potential for a networked relationship among the discrete studies. Also observed are the variety of seam potentials, as categorized by their performative condition of abutting, overlapping, etc., as equally recognized in clothing seams as elements of structure.

The research suggests a hypothetical architectural method of analysis that could address complex spatial conditions through non-linear formal strategies of pattern identification and system-based seam tactics.

figure 22
speculative network diagram





figures 22-25
courtesy of Canton Historical Society

Programming

With an agenda of preserving the continuity of living culture through a strategy of re-making, an architectural intervention proposes to rethink the patterns of contemporary industrial research, from input to participants to its role in the world community. Situated along the Farmington River since 1826, the original Collins Company axe factory developed around its innovative manipulation of water resources into metal-forging power. World demand for their revolutionary edged tools brought road and rail through the campus, while the town of Collinsville grew intimately connected to the integrity of the business and the “legitimus” of its products.

Proposed is Connecticut Global Fuel Cell Center, a research and development laboratory operated jointly by the University of Connecticut and private industries. The priorities of the Center concern innovations in product, manufacturing technique, and application, and is charged to engage the public in the event of industrial innovation.

The fuel cell itself is potentially a revolutionary product in its use of renewable resources to produce clean energy. A fuel cell produces electricity by chemically isolating electrons from hydrogen or biowaste fuel inputs, emitting only water (H2O) and organic waste. True to their name, fuel cells function cellularly as their application can range from powering a cell phone, to a refrigerator or scooter, to a neighborhood or campus, to entire nation. They are portable, stackable, and networkable.

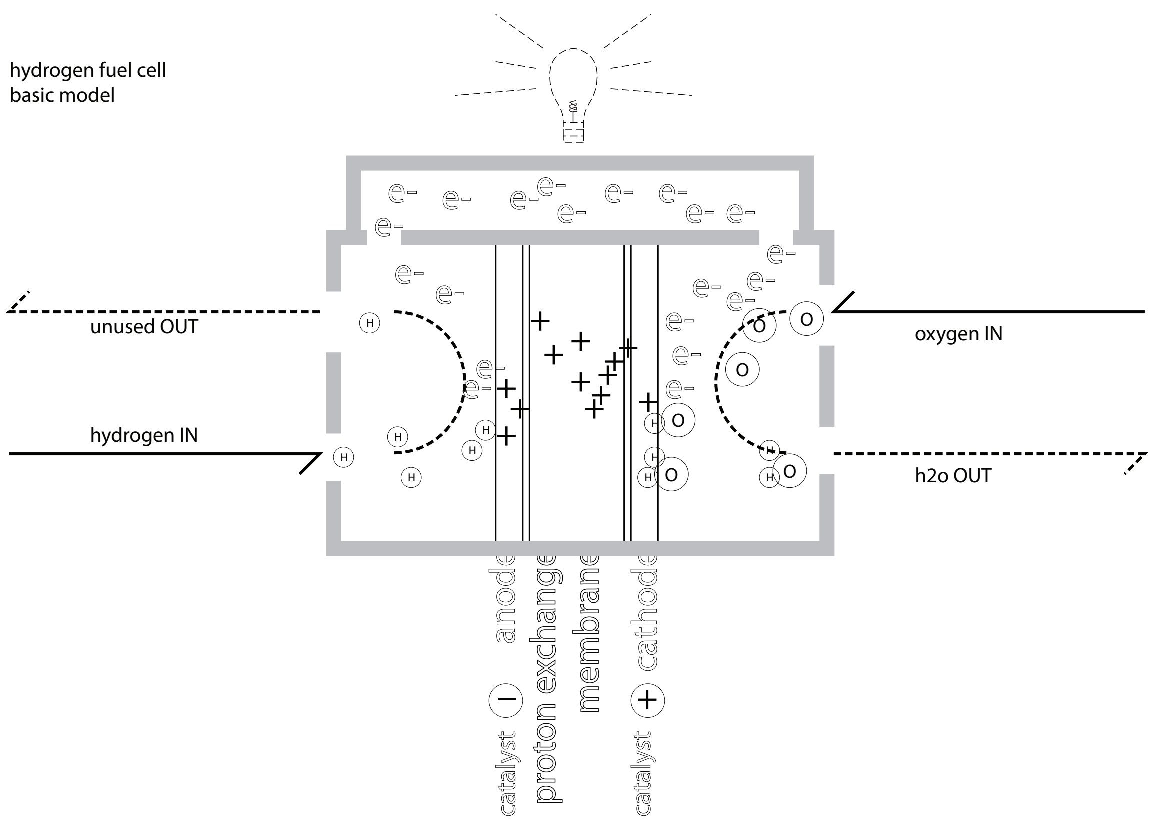


figure 26
ideal hydrogen fuel cell operation function

As critique the formal & functional 20th century industrial processes, the Connecticut Fuel Cell Center's industrial method is built on the network-based systems of Social Production. This method relies upon the accessibility and connectivity of many individuals diversely vested in the focused event. The resultant pattern of human activity is similar to that of the internet, where a consistent protocol & language is established among its participants, and the relative scalability & granularity of the production facilitate participation. It depends on the casual participation of the general public in the acts of testing and inventing.

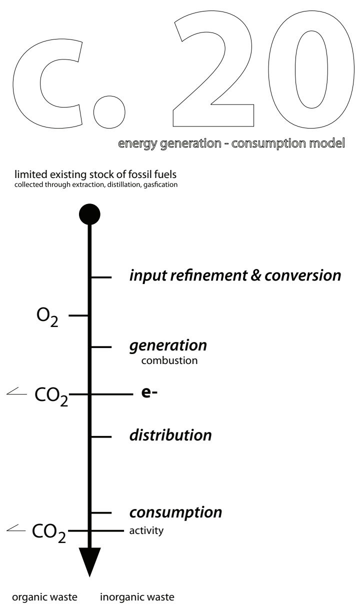
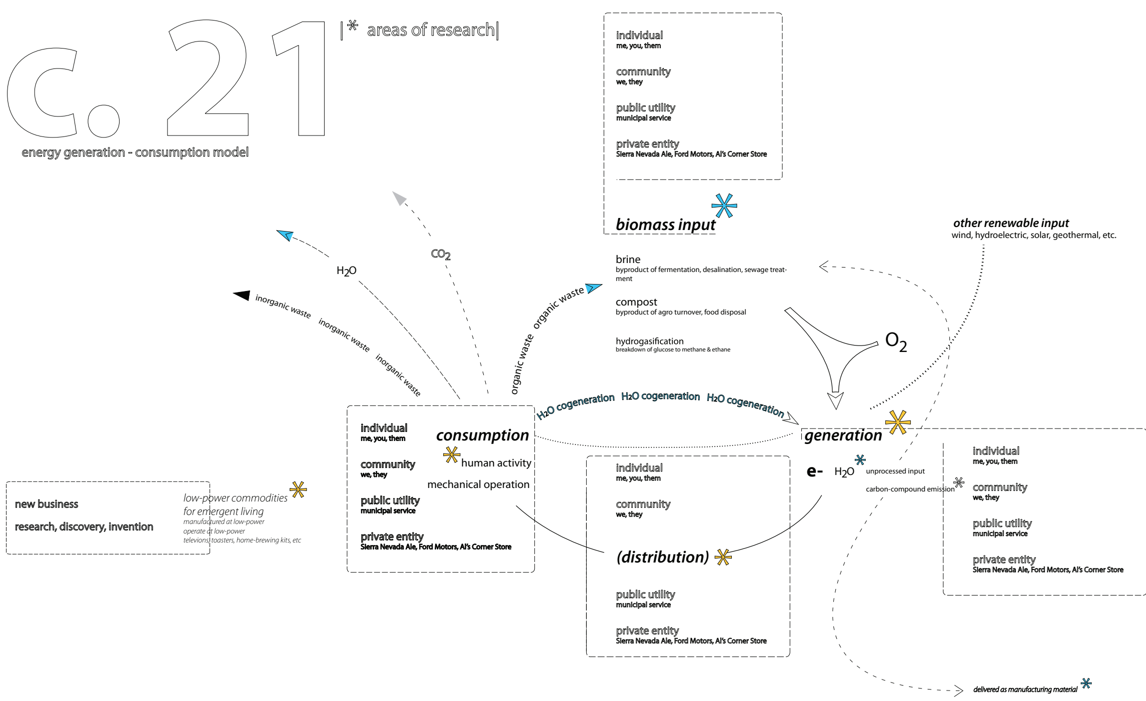


figure 27
The resultant operational pattern is also similar to that of a co-generative energy network based on the performance of a fuel-cell. Notice the organizational contrast with a combustion-based energy system typical of the Fordist industrial process.



As evidenced by the network diagram, what becomes critical to the production is the establishment of network hubs or pools where individuals can gather, collect, and exchange. The Connecticut Fuel Cell Center itself is composed of four such Pools. These facilities reflect the research and design process at hand. They are:

-the Information Pool (for academic and presentation facilities)

-the Prototype Pool (for manufacturing hardware and deploying models for test)

-the Feedback Pool (for participants to download test data and receive service support)

-the Assessment Pool (for data analysis and synthesis for future models)

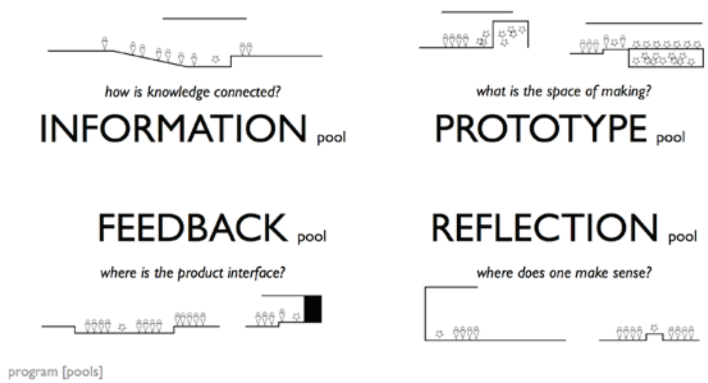

how is knowledge connected?
INFORMATION pool
what is the space of making?
PROTOTYPE pool
FEEDBACK pool
where is the product interface?
REFLECTION pool
where does one make sense?
program [pools]

figure 28

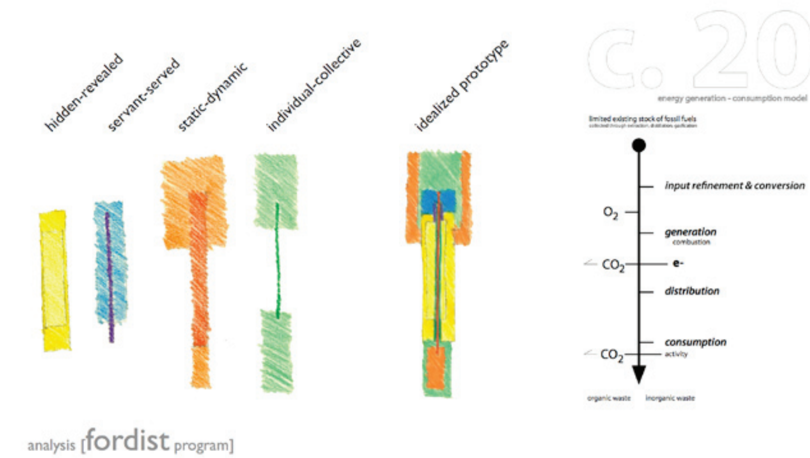


figure 29
ideal Fordist program

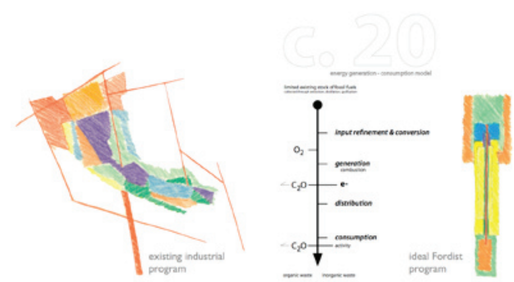


figure 30
existing site program vs ideal Fordist program

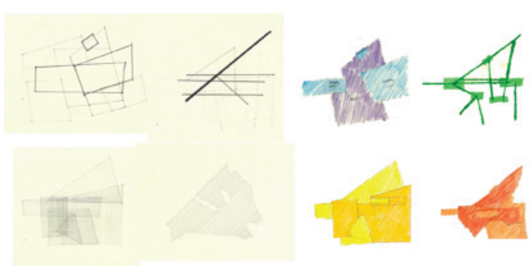
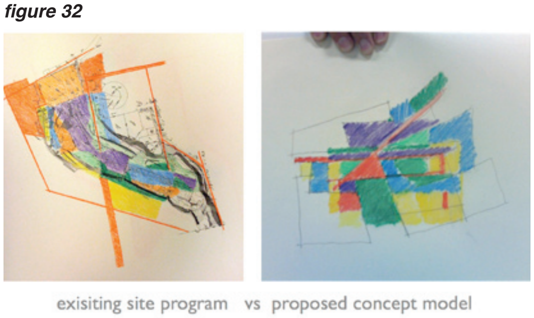


figure 31
ideal social-production program

figure 32



The method of program analysis reimagines the concept of seams by exploring overlapping conditions across a false assumption of dichotomous relationships. This produced a series of diagrams delaminating dichotomous spatial performance types: servant/served, static/dynamic, individual/collective, and hidden/revealed. The investigation exploits tertiary conditions as discovered program opportunities for juxtaposing events and audiences. The synthesis of this method presented conceptual models of the existing and idealized industrial processes.

The studied sets of information lead to a mutli-zonal, multi-dimensional discovery of prototypical program models.

The relationships were studied first as separate two-dimensional diagrams, then later recombined as a three-dimensional model that generated a series of embedded configurations of program relationships that coincided with the specific needs of the unique Pools.

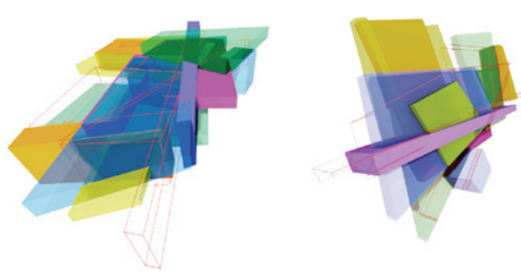


figure 33
three-dimensional conceptual model of social-production program relationships

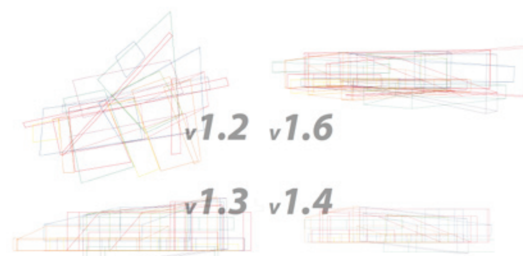
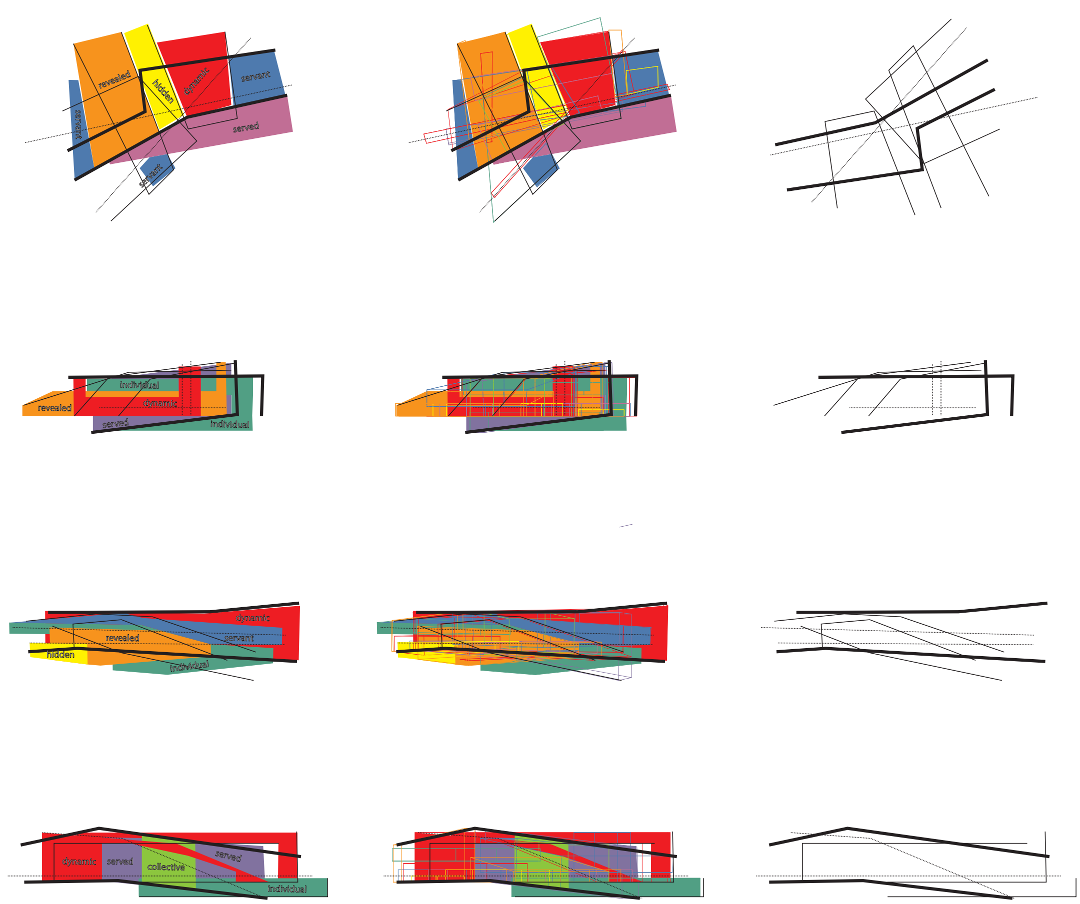


figure 34
wireframe sections of conceptual model revealing latent figural relationships describing embedded programmatic configurations



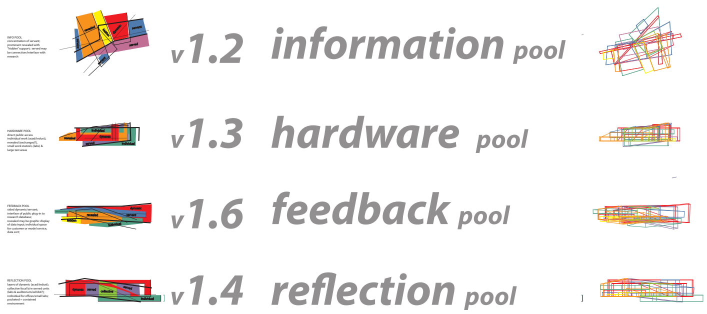
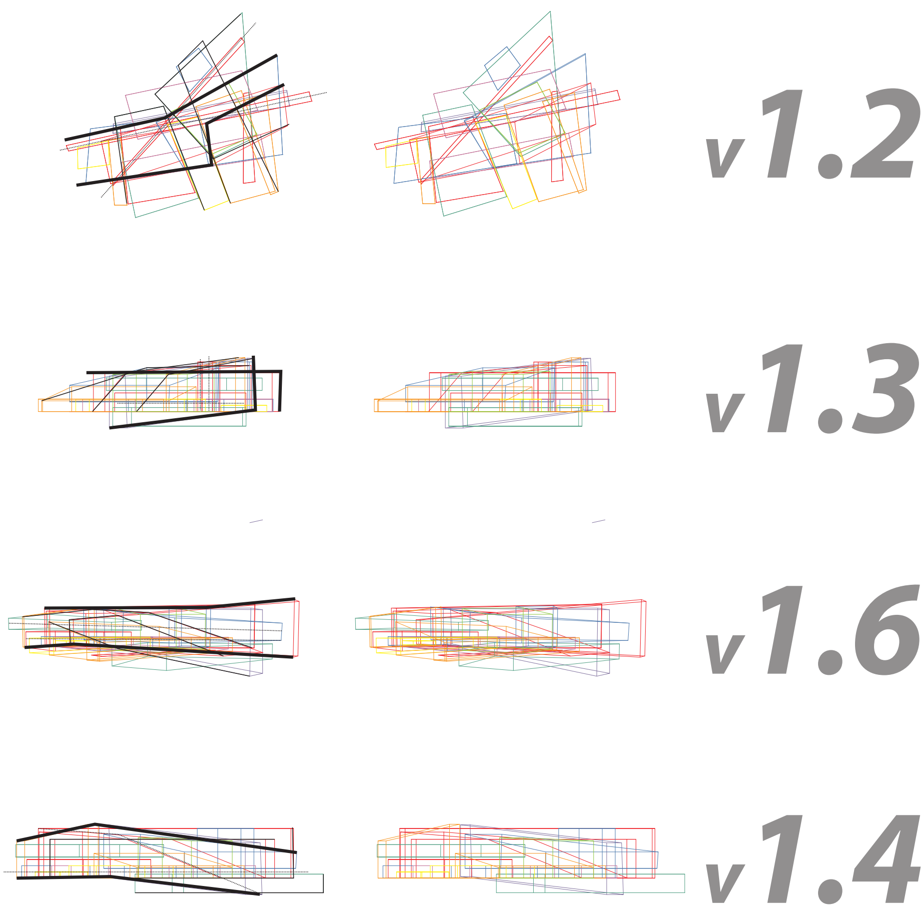


figure 36
translation to two-dimensional mapping of identified Pool conditons

figure 35
translation index



As the basis of design development, these concept prototypes were translated into form and volume, scaled according to the unit requirements of the program, and tested on the digital site. Continued alterations occurred through the tactical process of design.

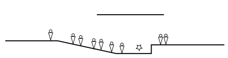
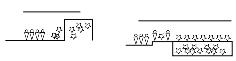
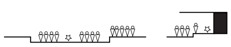
	INFO POOL	public access - dynamic academic access - dynamic industrial - view exterior view - town, campus, external natural light access via Town & Service	classrooms 3600sf training labs 4000sf conference areas 10000sf lobby-reception ???	university classroom facilities for satelite campus public information interface [exhibit, demo, collaborate, participate]
	PROTO[TYPE] POOL	public access - direct academic access - dynamic industrial - direct exterior view - town, campus access via Info & Service	fab shops 25000sf fab support 4000sf deploy ???	hydrogen - volatile, poisonous, flammable methanol - volatile, poisonous, flammable biowaste - possible toxicity, stable, possibly flammable water oxygen
	FEED[BACK] POOL	public access - direct academic access - dynamic industrial - none exterior view - n/a access via Town, Assessment?, Service	lab/interface 3000sf lab office 1000sf	
	ASSESSMENT POOL	public access - light academic access - dynamic industrial - dynamic exterior view - n/a access via Info, Feedback, Service	lab 7000sf lab office 2000sf	
	DEMO BATHS		heated bath/pool: natatorium, changing facilities, control	

figure 37

Pattern Pallette

At the conclusion of the research and intial analysis, an incredibly complex collection of information was documented and deemed essential. The conditions derived from the Historic Collins Factory site, the extinct industrial methods, the program of the Connecticut Global Fuel Cell Center, the ideal of social-production, agendas of sustainable energy and promoting culture. The complexity provides appropriate conditions to implement the hypothetical design methodology based on pattern recognition and non-architectonic structural analysis.

With millions of documentable artefacts to consider, the first goal of the method is to identify simple conditional relationships. As in the conceptual study of pattern, the data begins to separate itself among distinct relationships with the built environment or experiences significant to the current story of the site. These essential patterns of the built and living culture help reveal the nature of and the tactics for an architectural intervention.

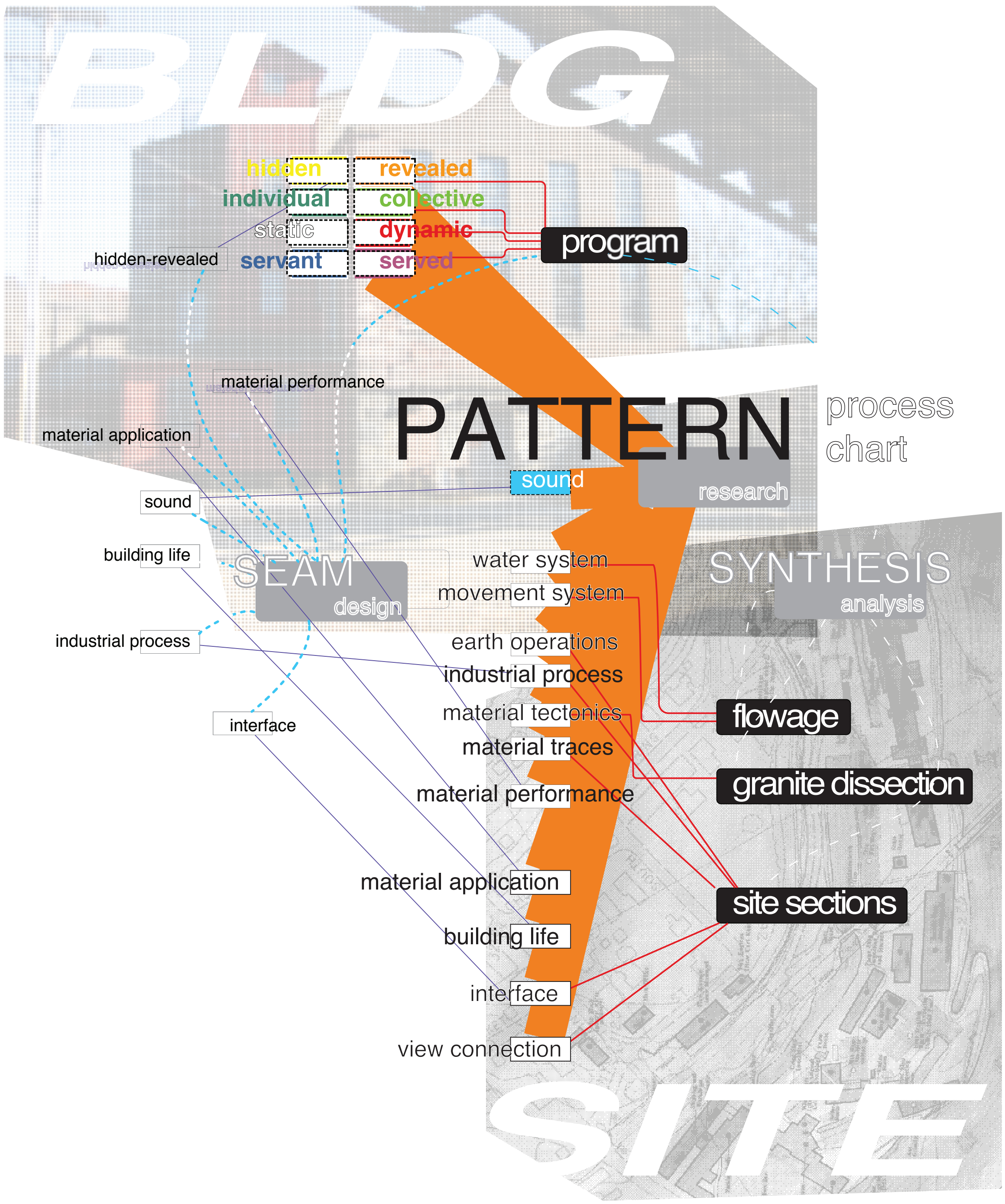

BLDG
hidden
revealed
individual
collective
static
dynamic
hidden-revealed
servant
served
program
material performance
PATTERN
process
chart
material application
sound
research
sound
building life
SEAM
design
water system
movement system
SYNTHESIS
analysis
industrial process
earth operations
industrial process
material tectonics
flowage
interface
material traces
granite dissection
material performance
material application
site sections
building life
interface
view connection
SITE

figure 38
Once collected, the different pattern sets often combined, juxtaposed, or contrasted to expose unanticipated relationships in site, program, or building. Some patterns lent themselves to analytical investigation, while others were explored directly in the process of design.

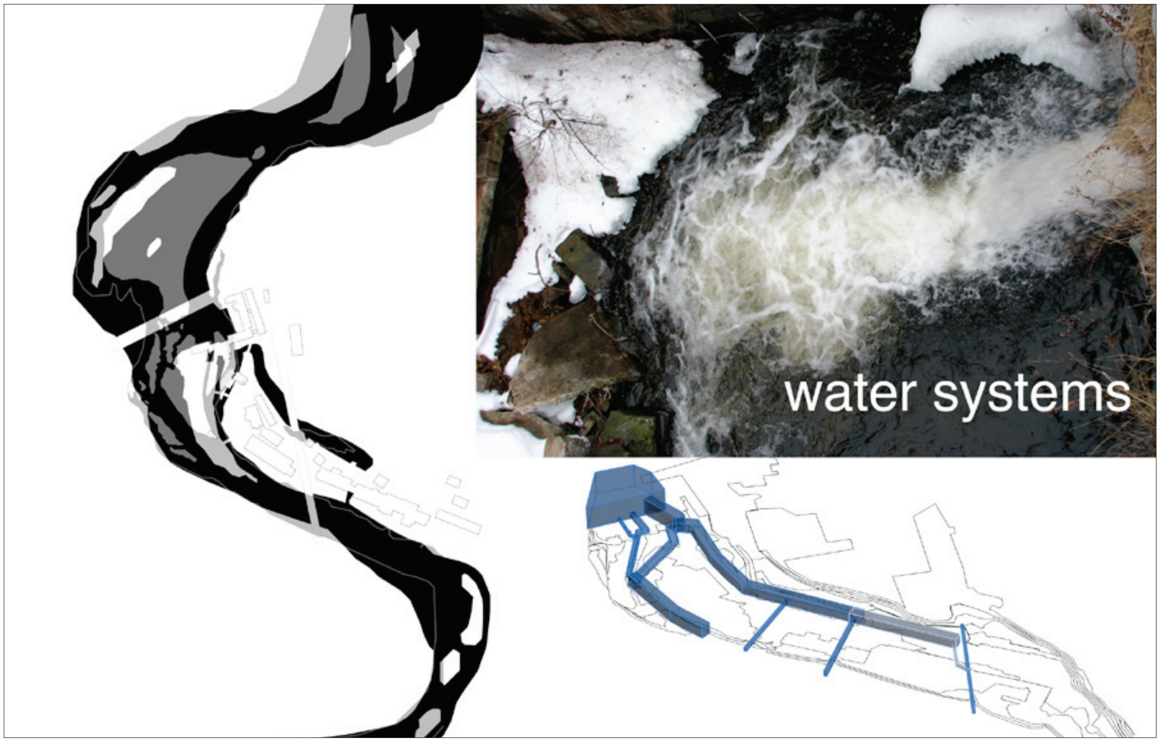


figure 39

figure 40

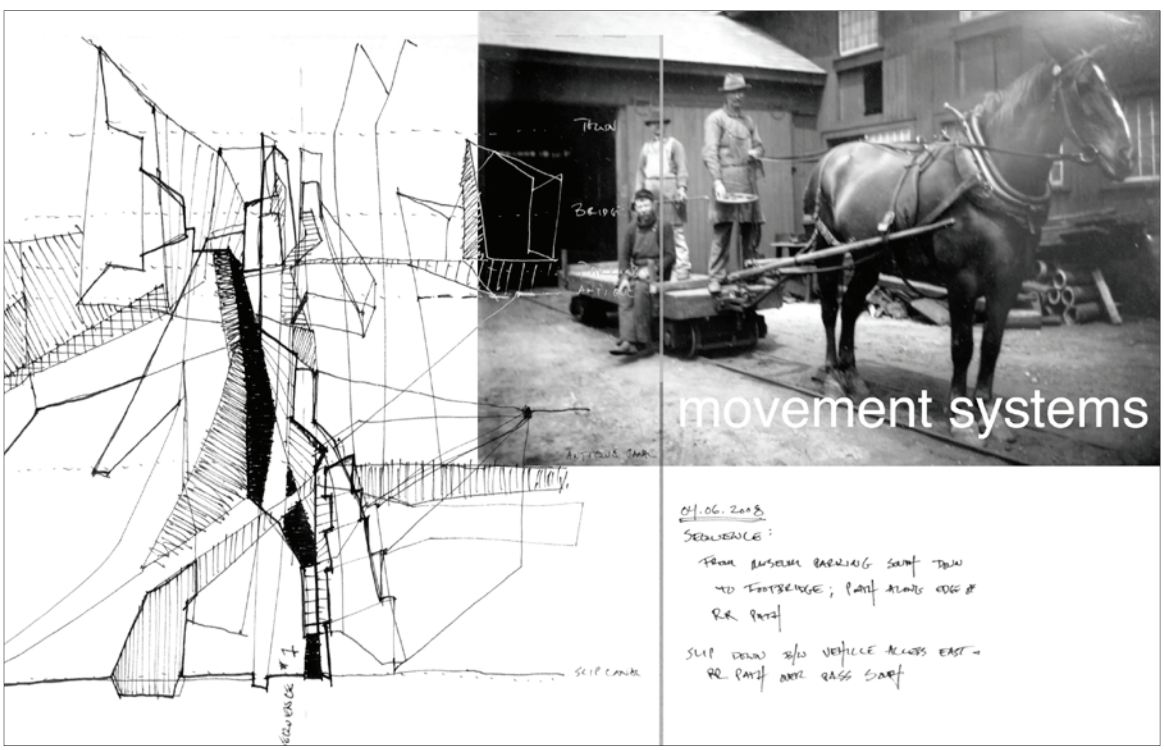


figure 41

figure 42

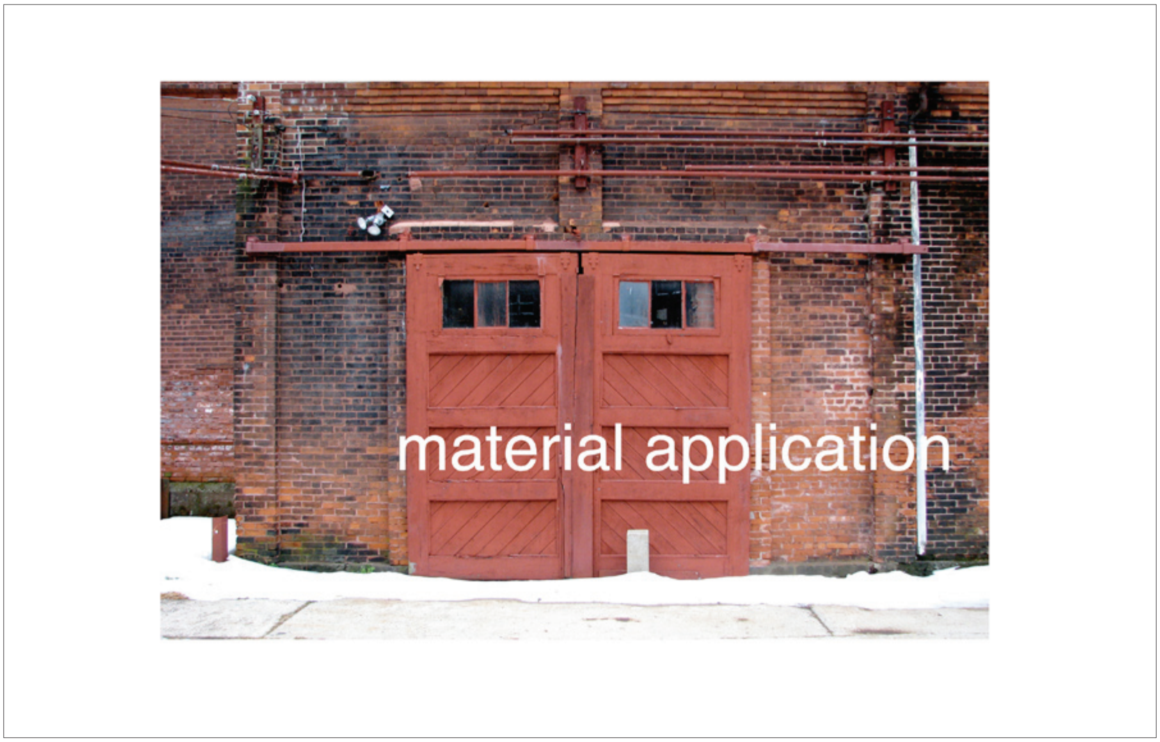


figure 43

figure 44

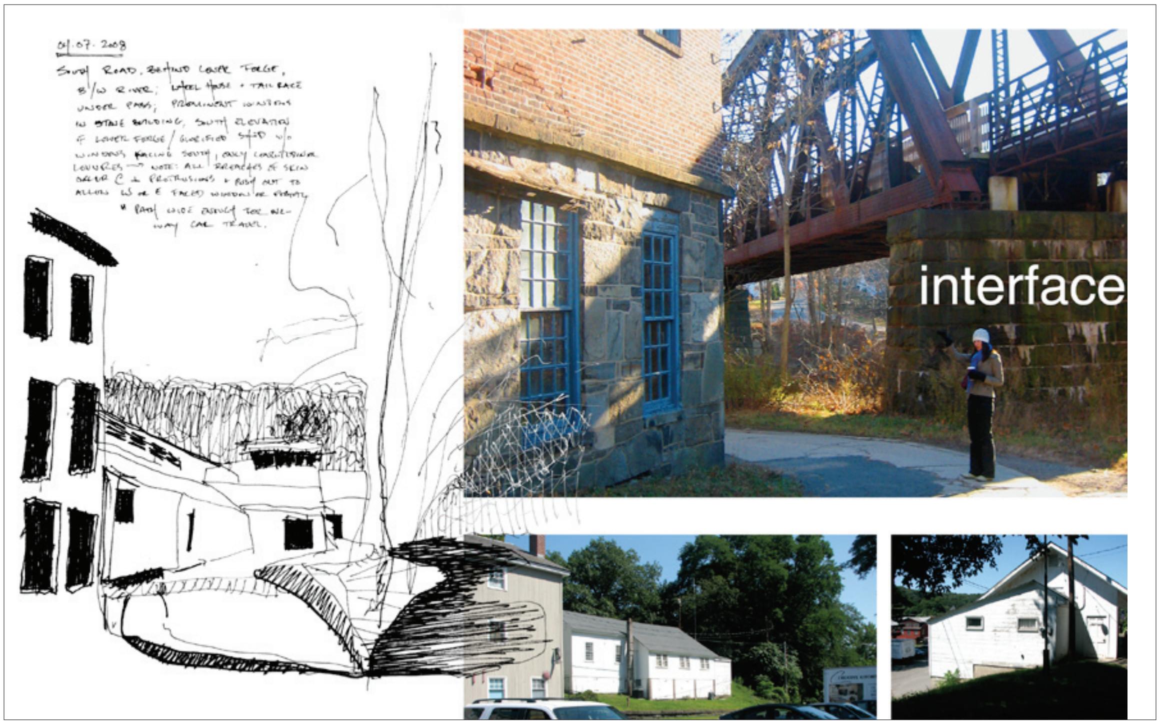


figure 45

figure 46

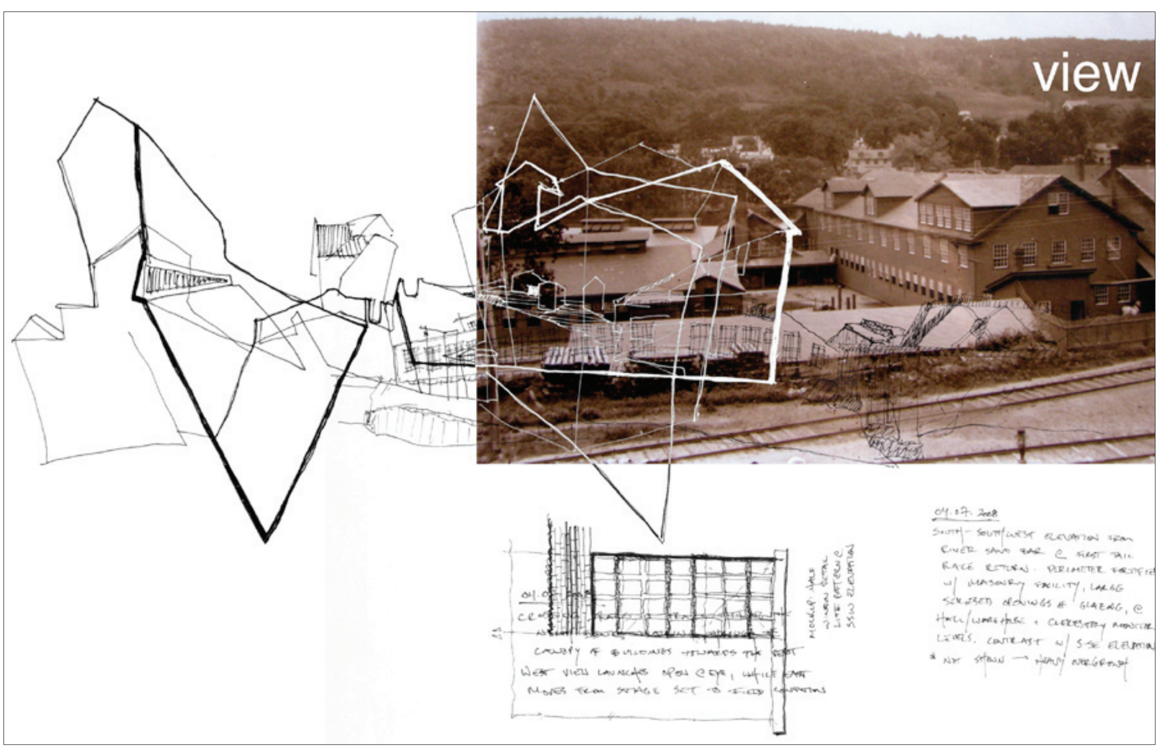


figure 47

figure 48

Site Strategy

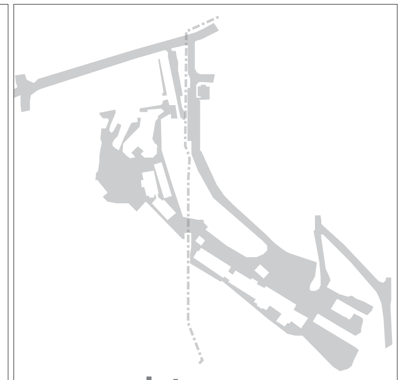
While some patterns went on to influence later ideas of building strategies, others affected an initial site strategy

Working with the pattern pallettes, the site analysis concluded in an intervention strategy that focused on the derelict portion of the factory complex east of the rail overpass.

The only two existing means of vehicular access occur in this area. The lower canal remains active, flowing through two operational sluiceways, one involving a functional wheelhouse. Upon the recommendations of historical assessments, the Granite Building and Lower Forge were targeted for material remaking and programmatic repurposing. Historic maps of the factory described the various factory processes and their locations over the decades. The scars of these events are often visible as ruins or projected as voids in the landscape, and served as traces to reinhabit.

2008 **settlement**

1833-2008 **fig|ground**



2008 **open lot**

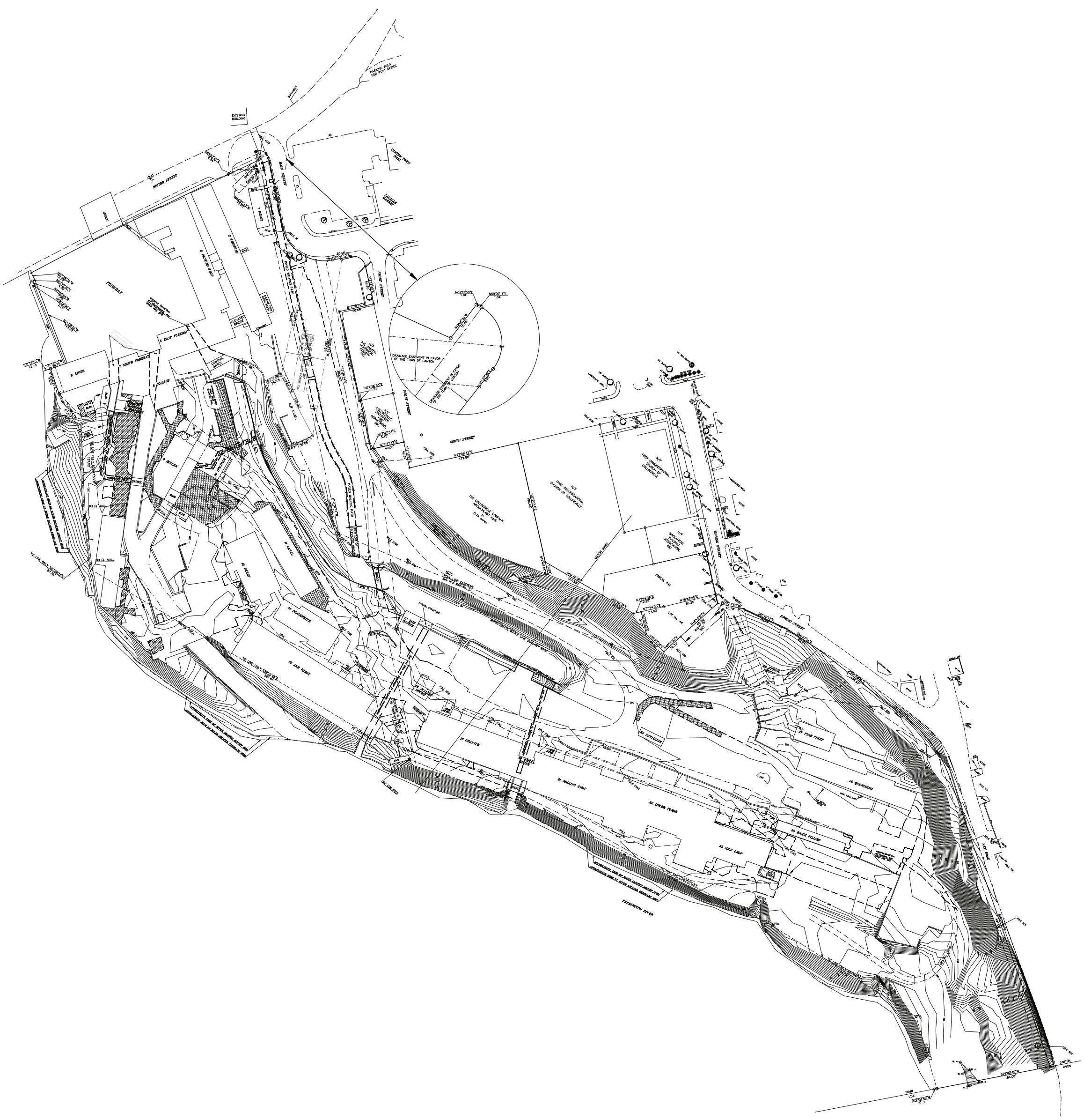


figure 49
initial figure-ground analysis,
incapable of documenting qualitative and unfamiliar

figure 50

existing site plan, nts

figure 51
physical site model
beginning as an isolated section study grew as the analysis speculated embedded regulating lines across the site, generated from existing and historic conditions of water systems, material tectonics, material traces, and industrial processes

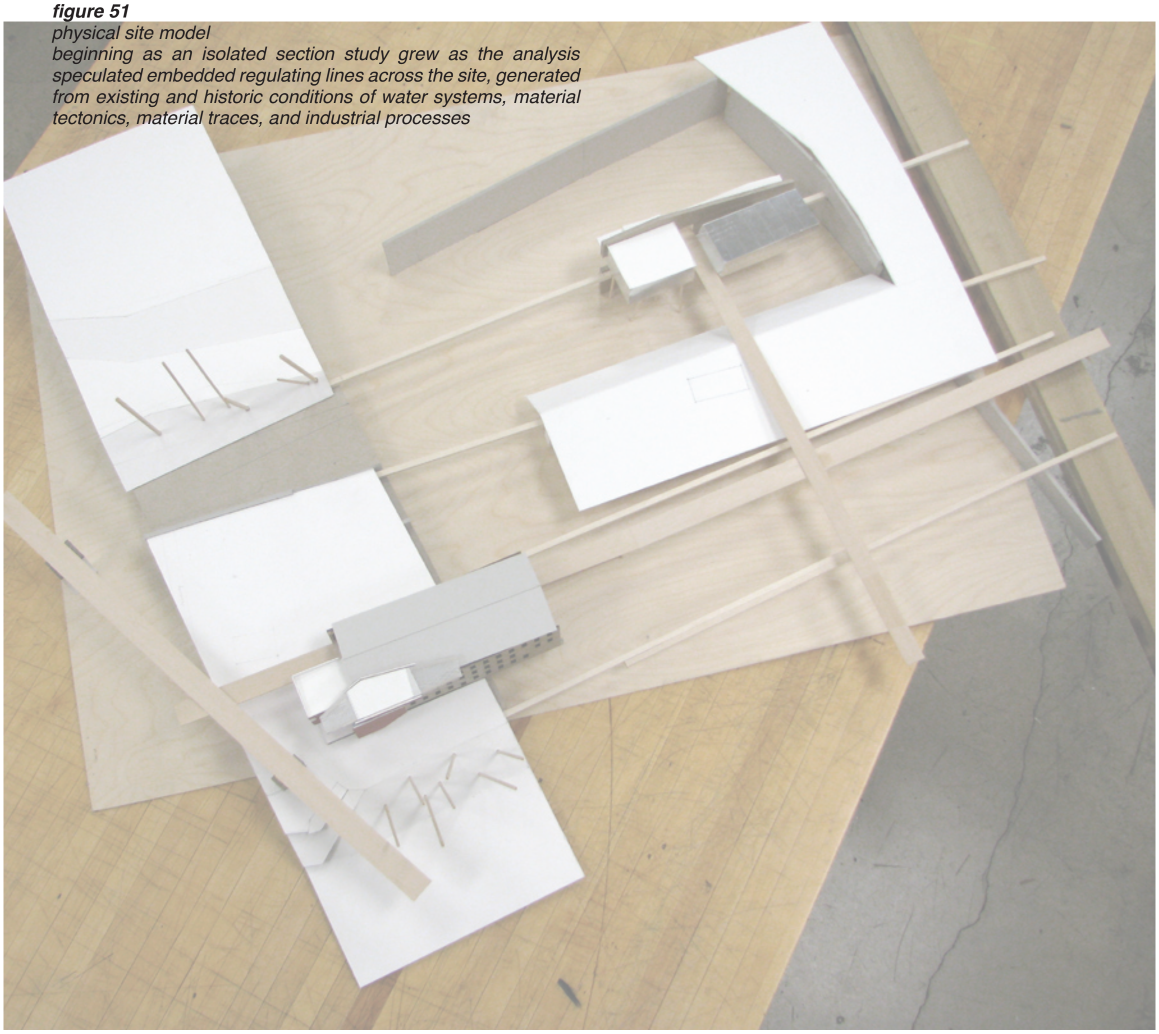
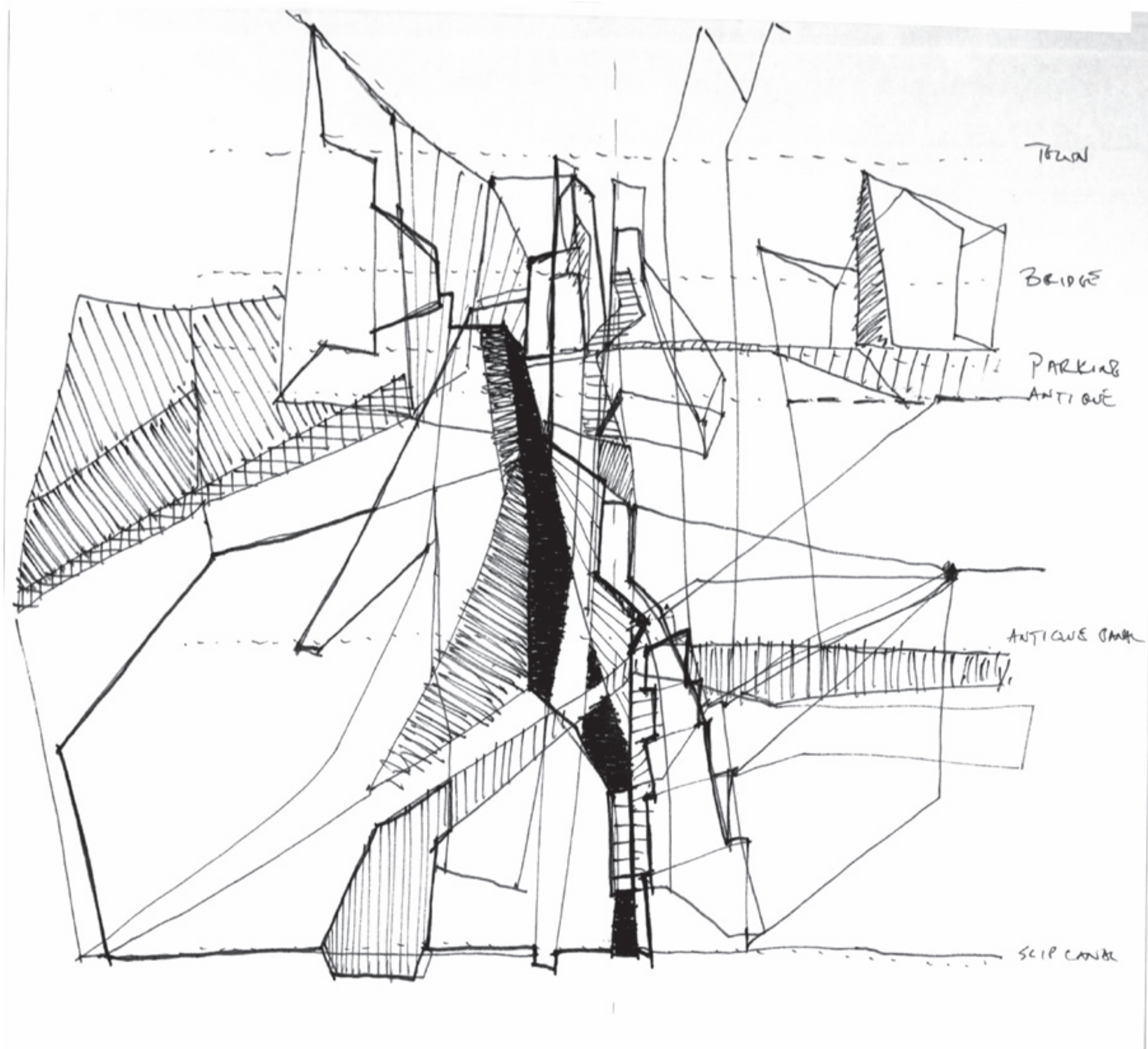


figure 52
on-site perceptual mapping,
from Museum to factory level at lower pedestrian bridge; investigating the unfamiliar through situationally implicit graphic technique



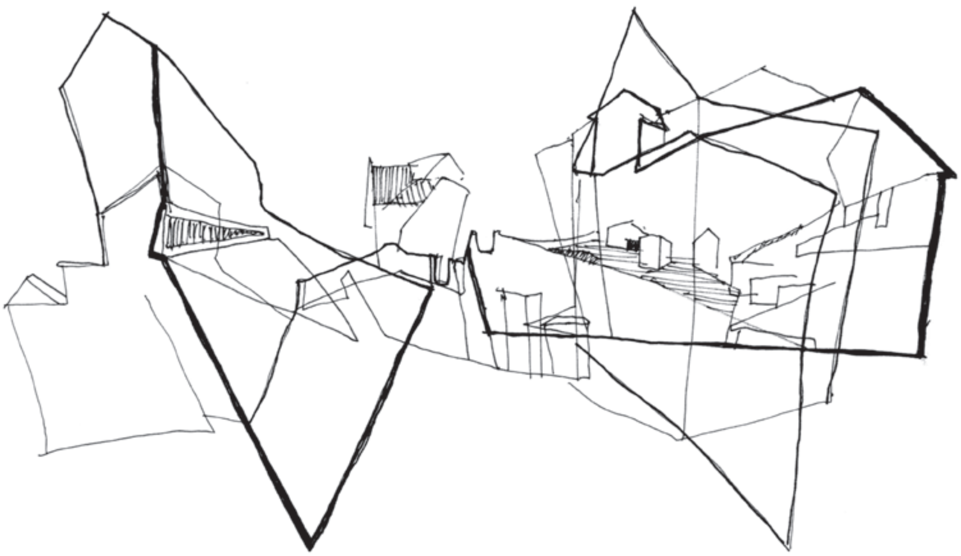


figure 53
on-site perceptual mapping,
from Steel Bridge towards town on elevated path; investigating the unfamiliar through situationally implicit graphic technique

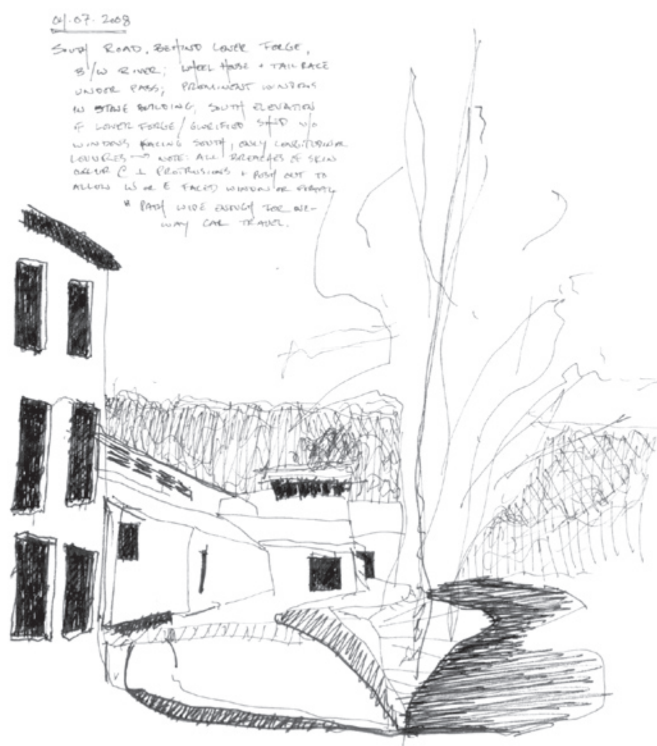
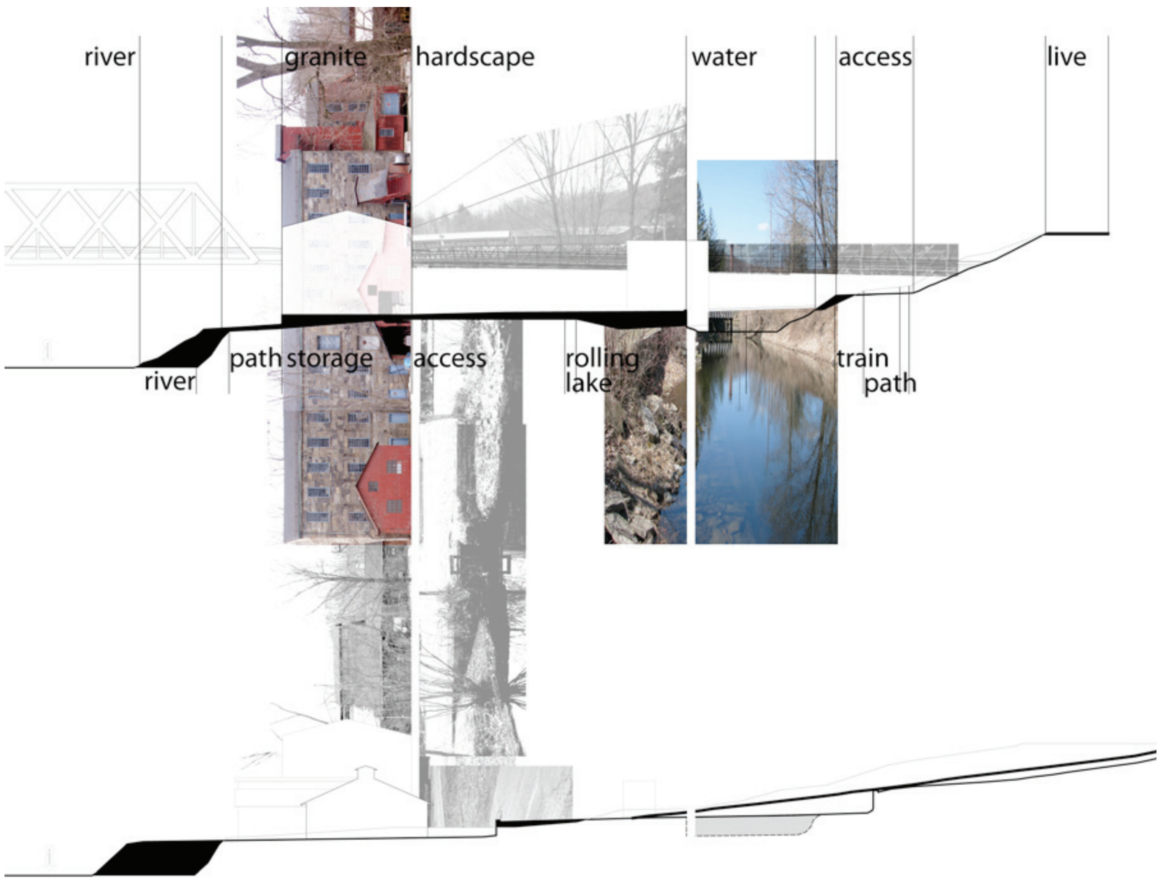


figure 54
on-site analytical sketch,
massing and interface condition between Granite Building - Lower Forge and river



river
granite
hardscape
water
access
live
river
path
storage
access
rolling
lake
train
path

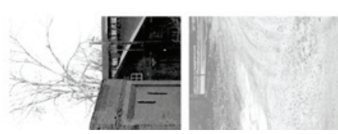


figure 55
site section analysis, nts
the pattern of earth operations, that is, the human-made events that have affected topographic conditions, provides the framework for revealing a more the specific area of land among the 5.5 potential acres.

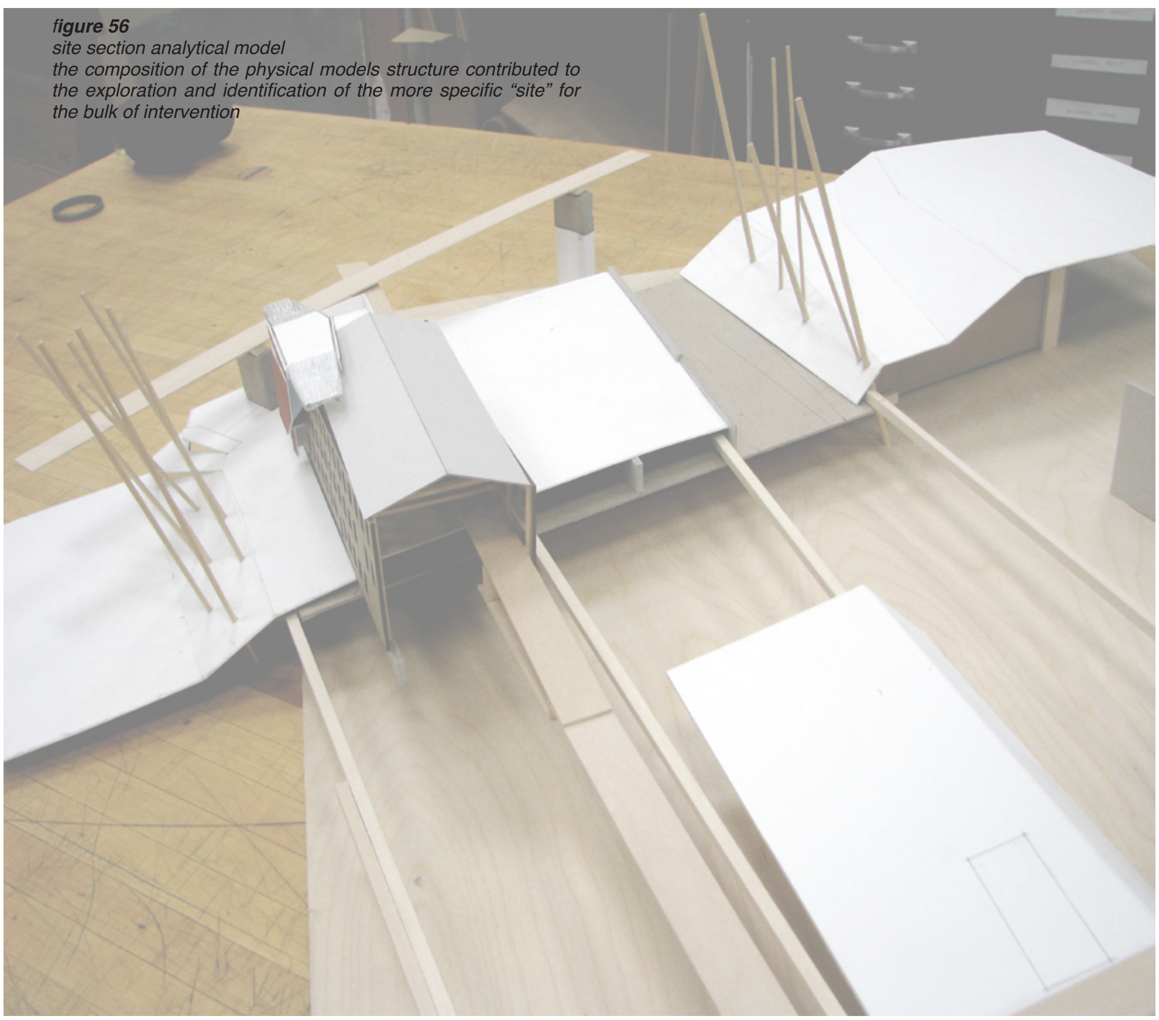


figure 56
site section analytical model
the composition of the physical models structure contributed to the exploration and identification of the more specific "site" for the bulk of intervention

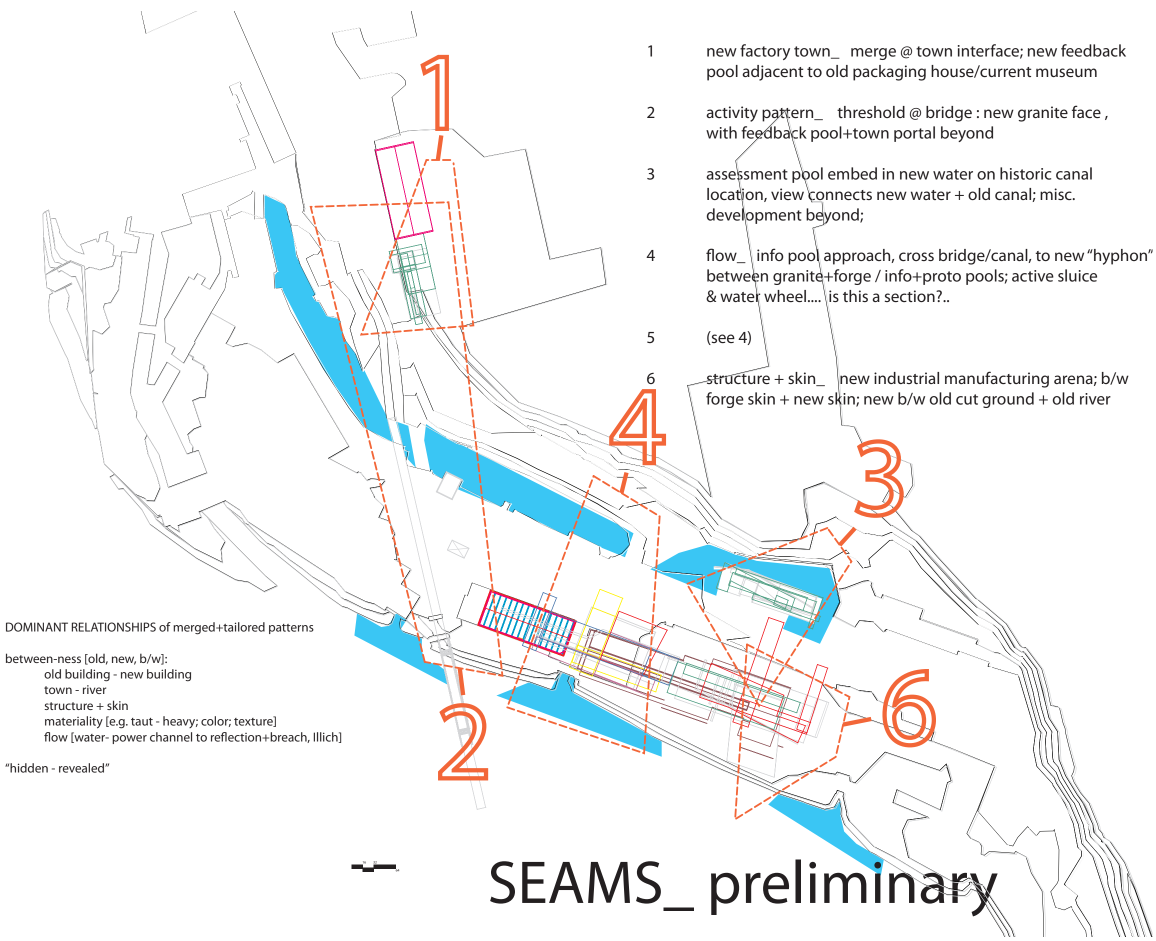


figure 57
initial prototype configuration & seam proposal, nts
the wireframe figures indicate the scaled program Pool prototypes

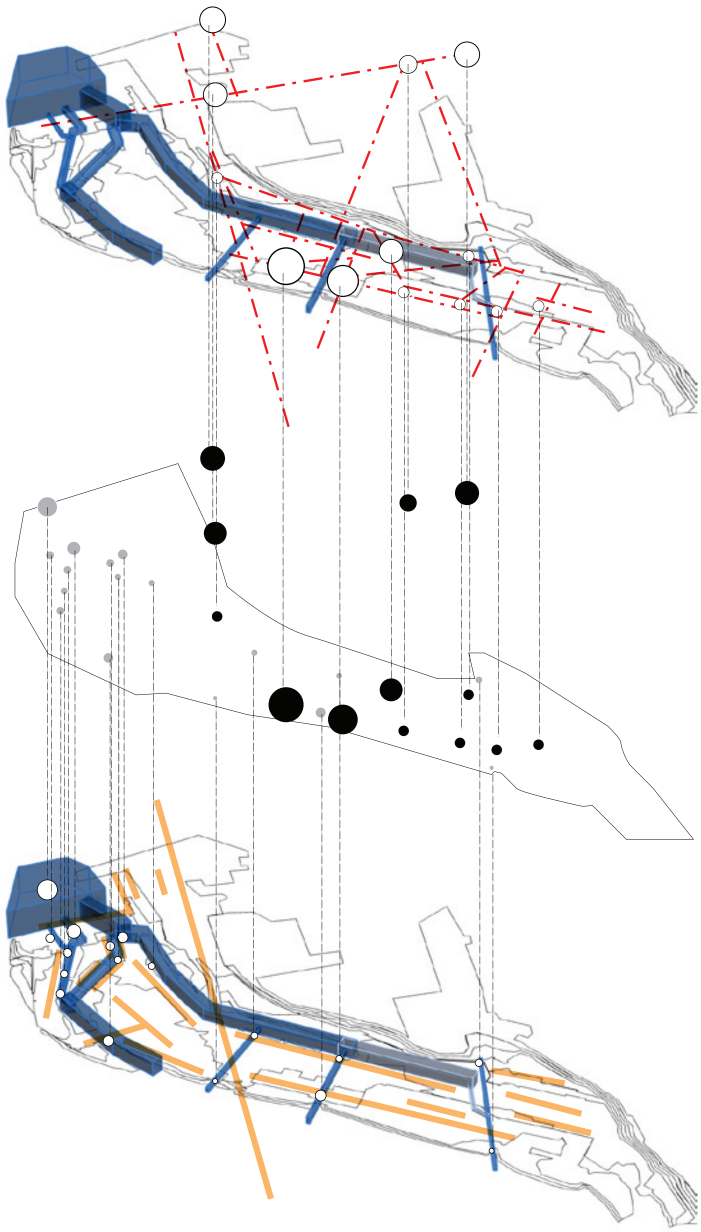


figure 58
system configuration, existing & hypothetical, nts
a linear constellation of industrial processes, access paths, and visual queues overlays atop the water infrastructure to reveal orientation of major movement networks and to suggest new relationships between systems

Seam Tactics

In the pursuit of exploring non-architectonic design structures, the strategy of the design proposal is, simply put, to introduce new patterns to old. This implies the development of critical “seams” where patterns join while exploring a number of questions.

How are these seams expressed?

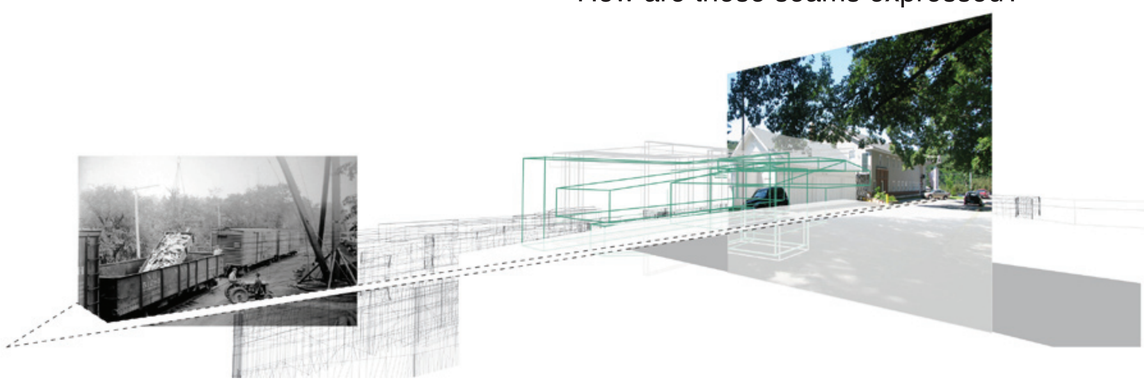
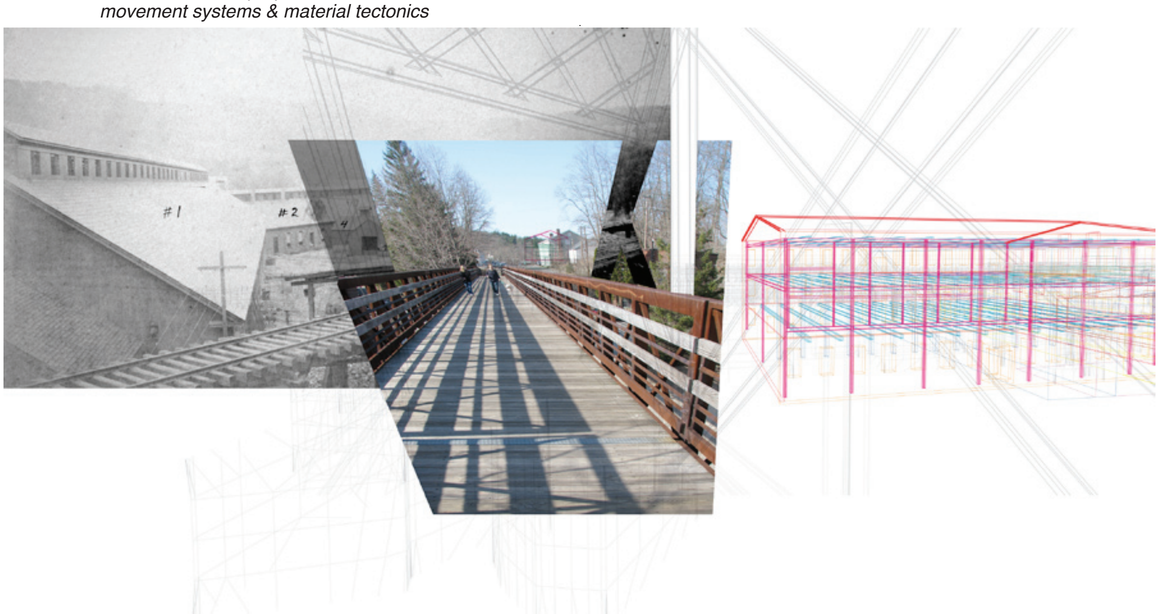


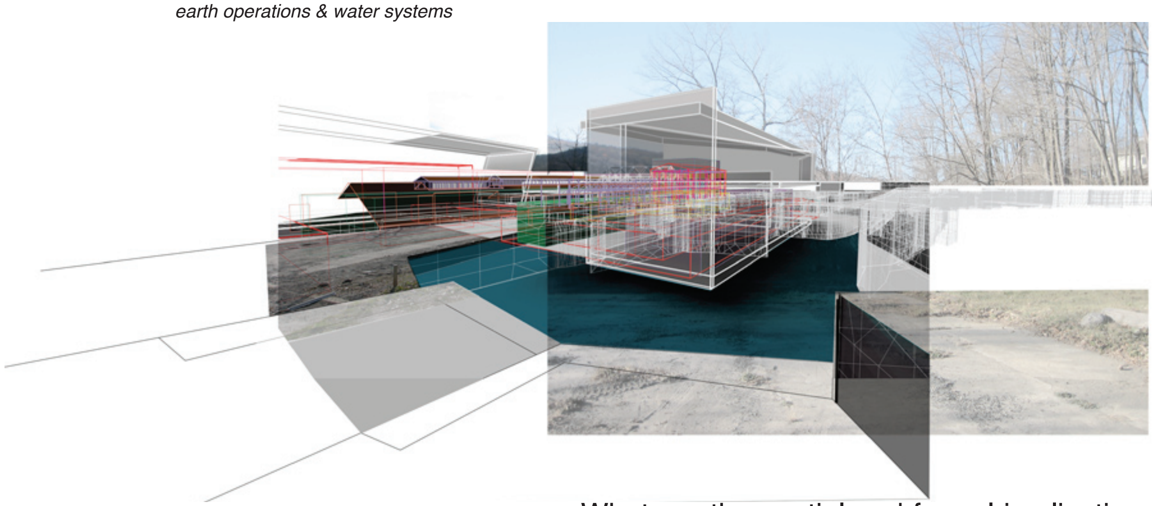
figure 59
feedback seam proposal:
interface & view

figure 60
information seam proposal:
movement systems & material tectonics



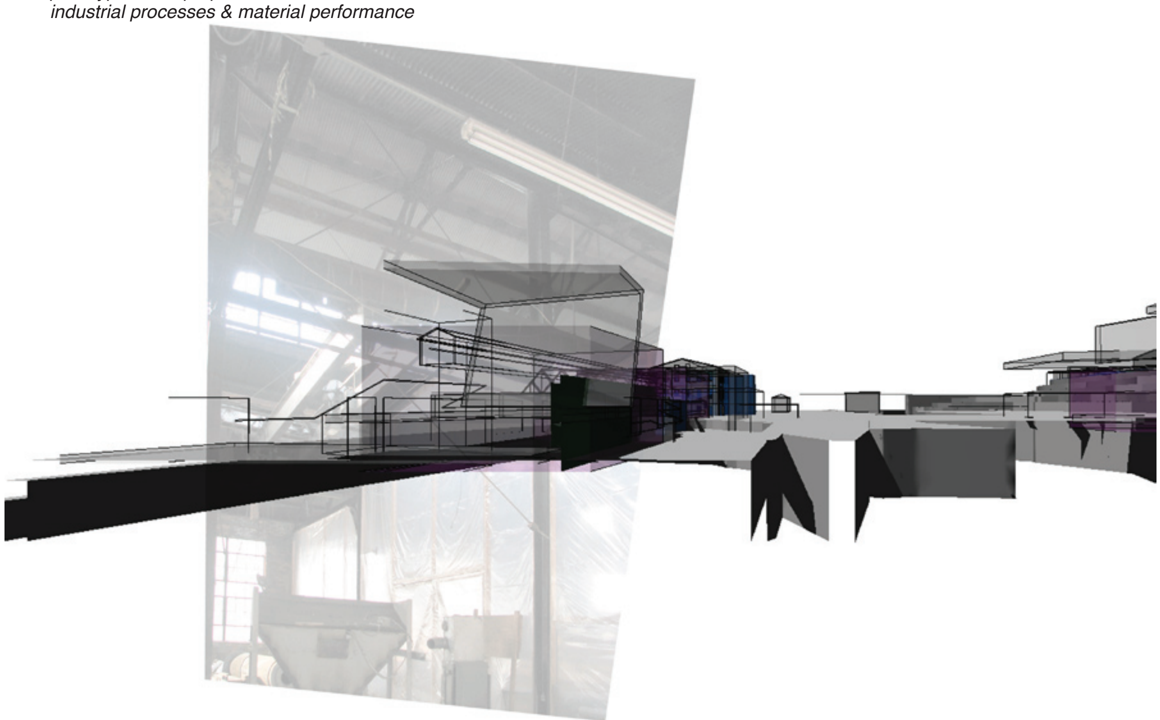
How could these seams integrate across the network of the site? And in their situational nature, what and where are the dominant relationships?

figure 61
reflection seam proposal:
earth operations & water systems



What are the spatial and formal implications at these moments? How do the forms, configuration, or scenes operate didactically to reinforce the living history and ideals of the site?

figure 62
prototype seam proposal:
industrial processes & material performance

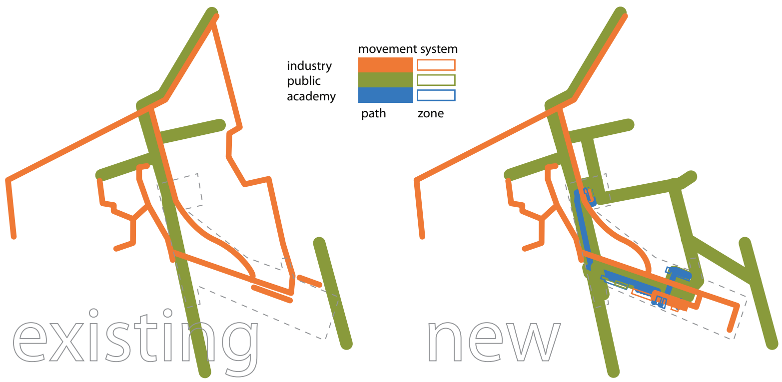


When do stories and ideals merge, conflict, or coexist? When and how is the experience of the place between these patterns?

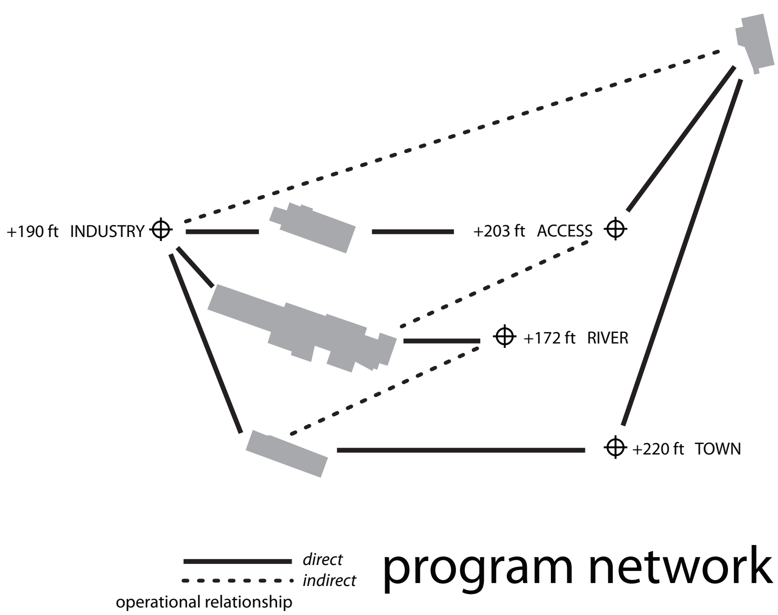
Design Development

The design strategy culminated with the re-orientation of water flowage and operational paths from their linear Fordist system to an innovative system of return-cycles and cross-paths characteristic of contemporary network systems. Extant traces of built environment and historic processes contributed to the identification of existing frameworks which were re-framed or transformed with new programmatic conditions, site remediation, and contemporary technologies.

As the design itself is a mechanism in the testing of the hypothetical methods of the conceptual framework, the scope of the development concentrates on the four seams. These concentrations consider the individual seam conditions both as episodic fragments and also as they integrally relate across the site as Pools of the new public-industrial network.



movement network



program network

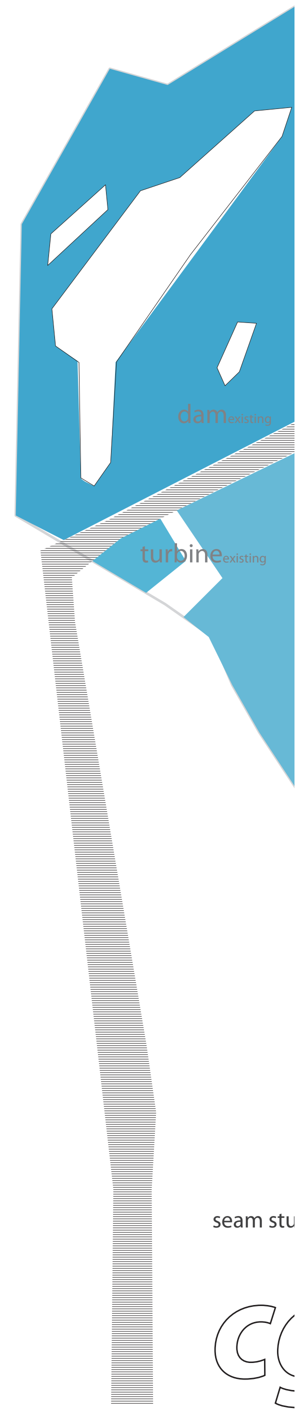
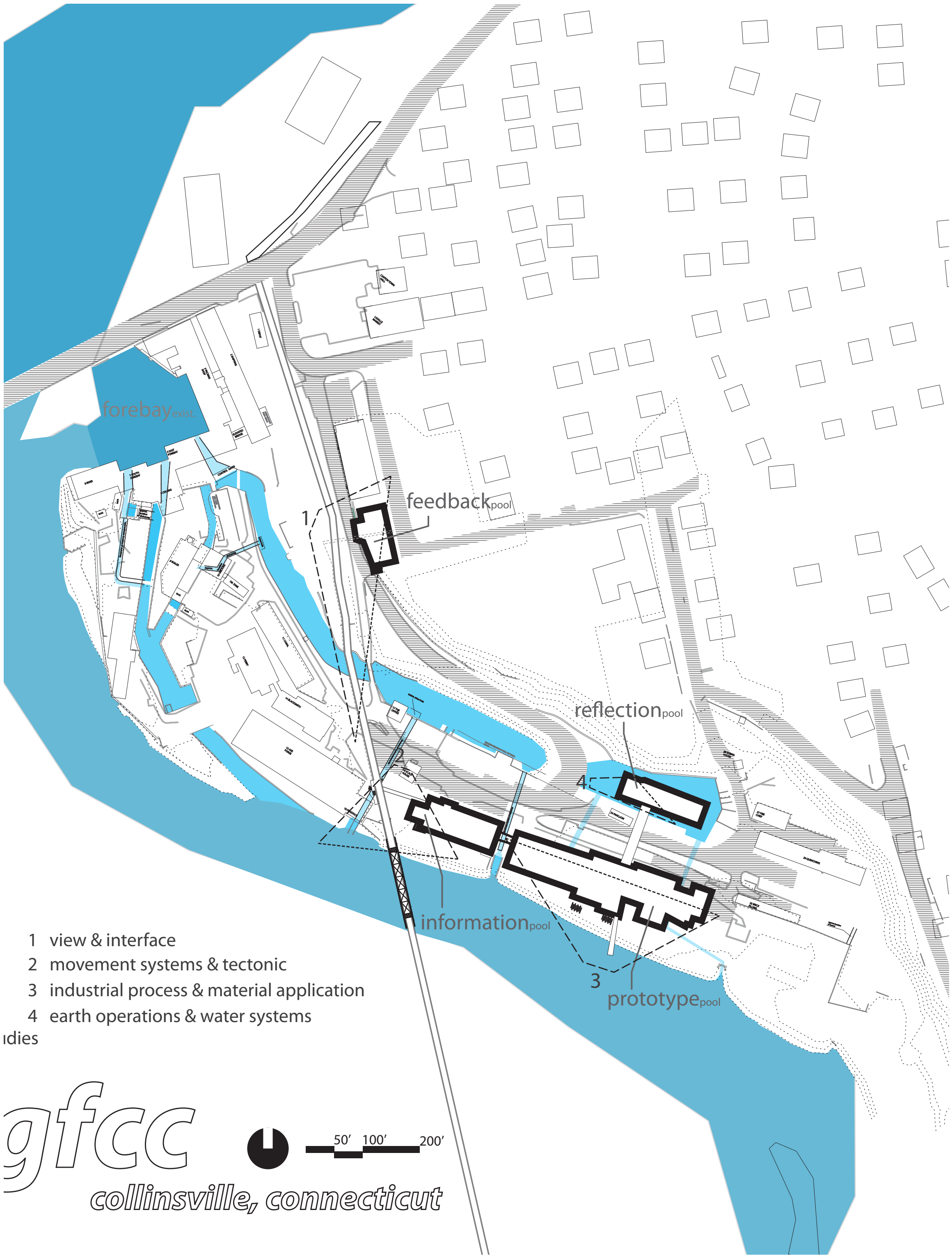
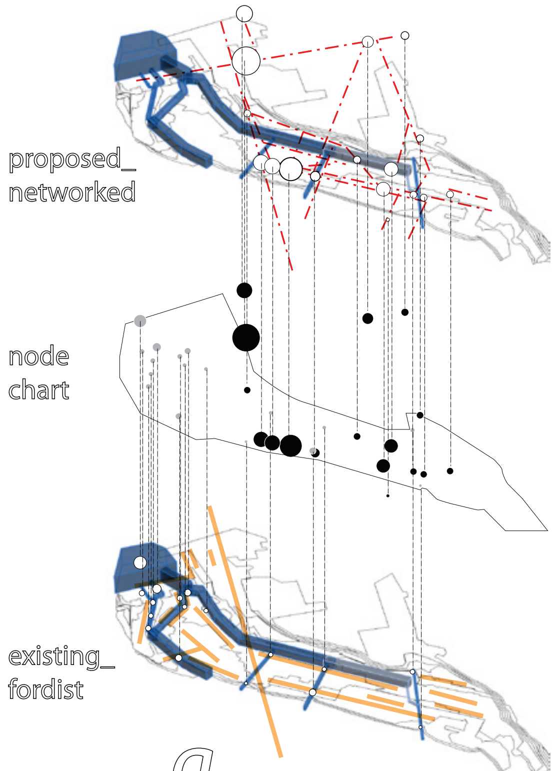


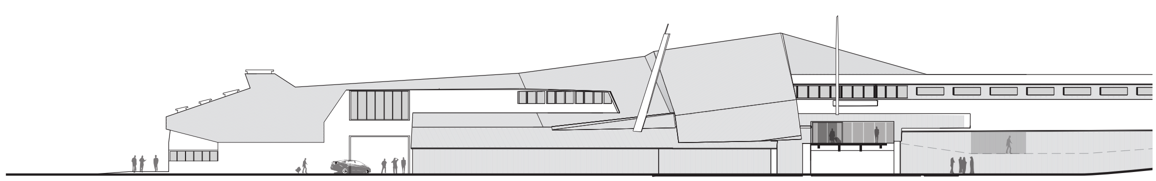
figure 63
site plan & network diagrams



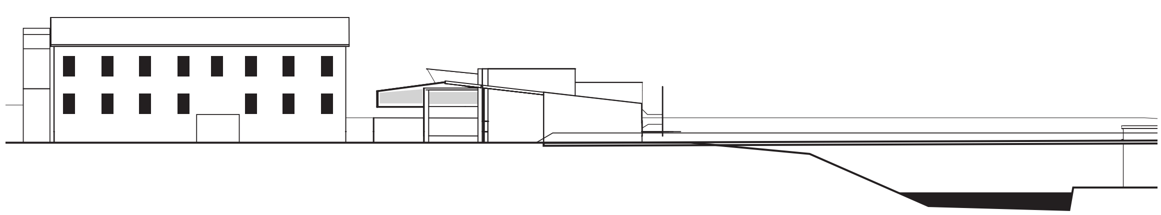


flowage
water movement access

figure 64
designed flowage network



east bridge
8 16 32
north elevation



rail path
16' 32' 64'
section, view to east bridge

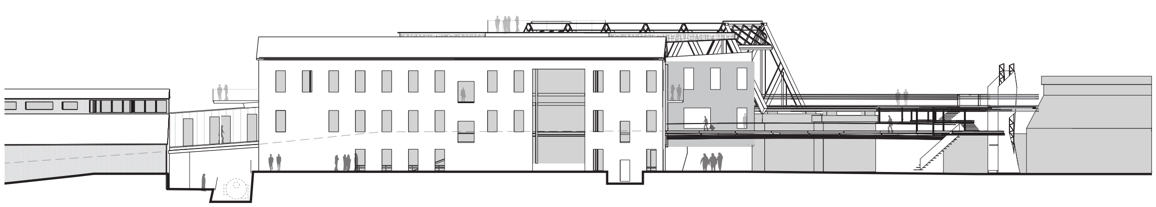
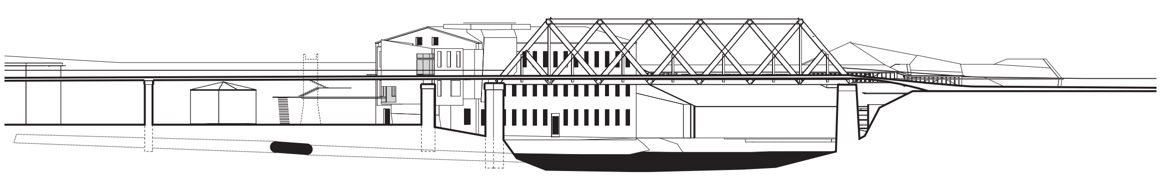


figure 65
Proposed East Bridge, north elevation

figure 66
Proposal, section thru rail path looking east



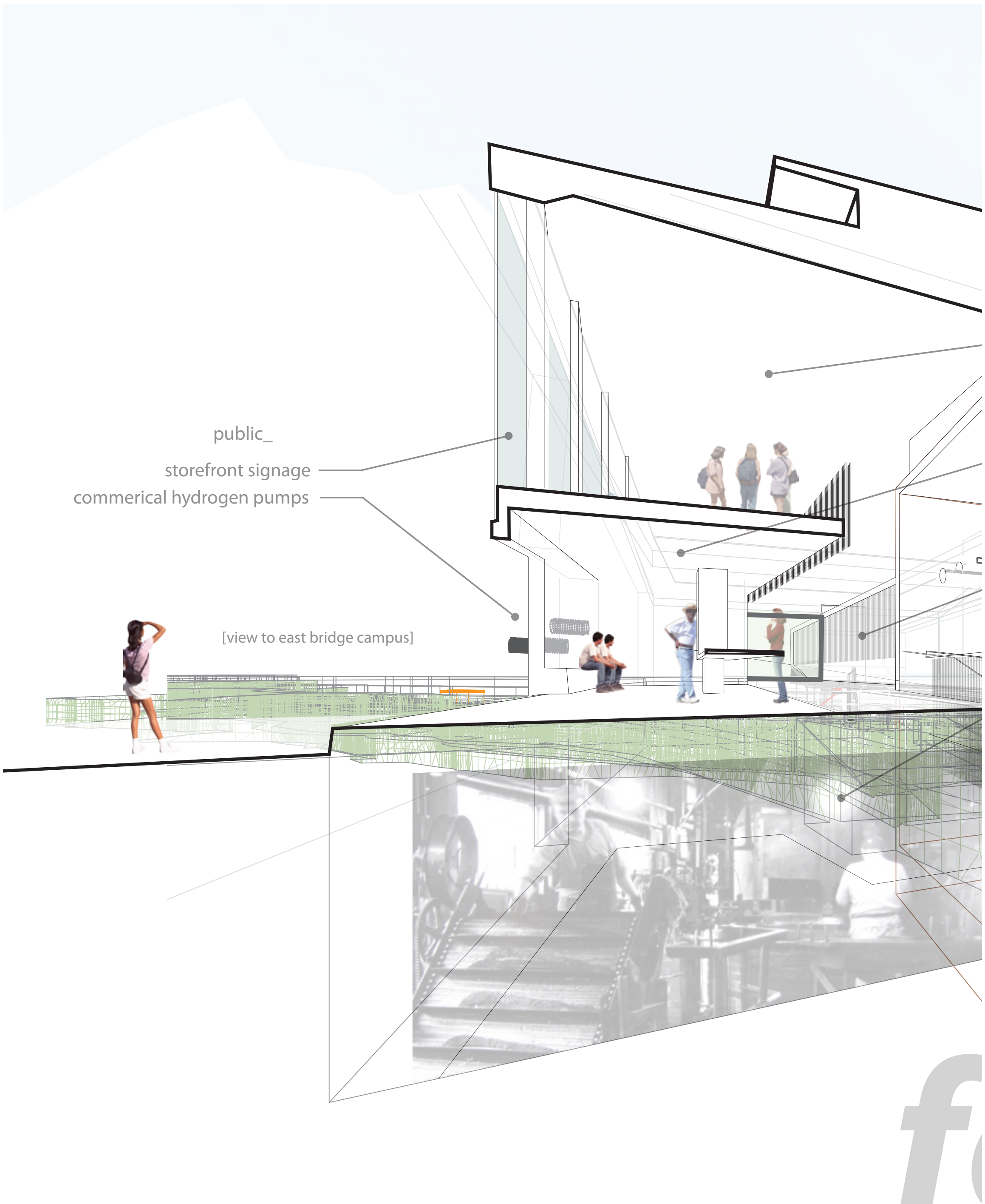
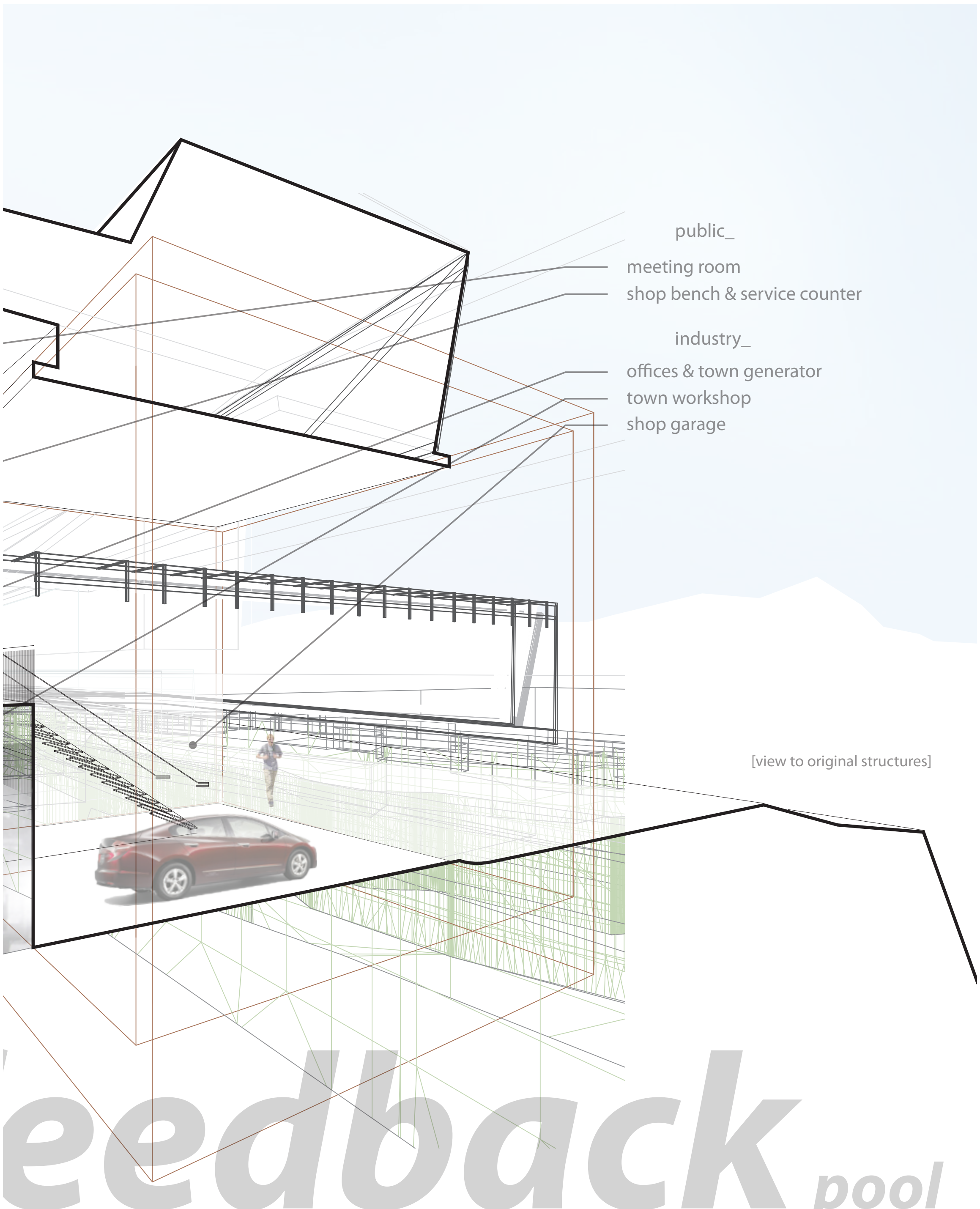

public_
storefront signage
commerical hydrogen pumps
[view to east bridge campus]
f

figure 67
section-perspective looking south, Feedback Pool



feedback: (tactic) town-access

interface (analysis of surface conditions of existing massing which internally mediated sided conditions of public-private / solid-void) – threshold of town-industry at urban scale & of civic-industrial at pedestrian scale

view (analysis of framing conditions existing massing which externally mediated view-corridors) – juxtapose historic & theatrical layers through scenographic composition

figure 68
view, historic thru to original saw mill

figure 69
interface, on-site study of existing surface conditions

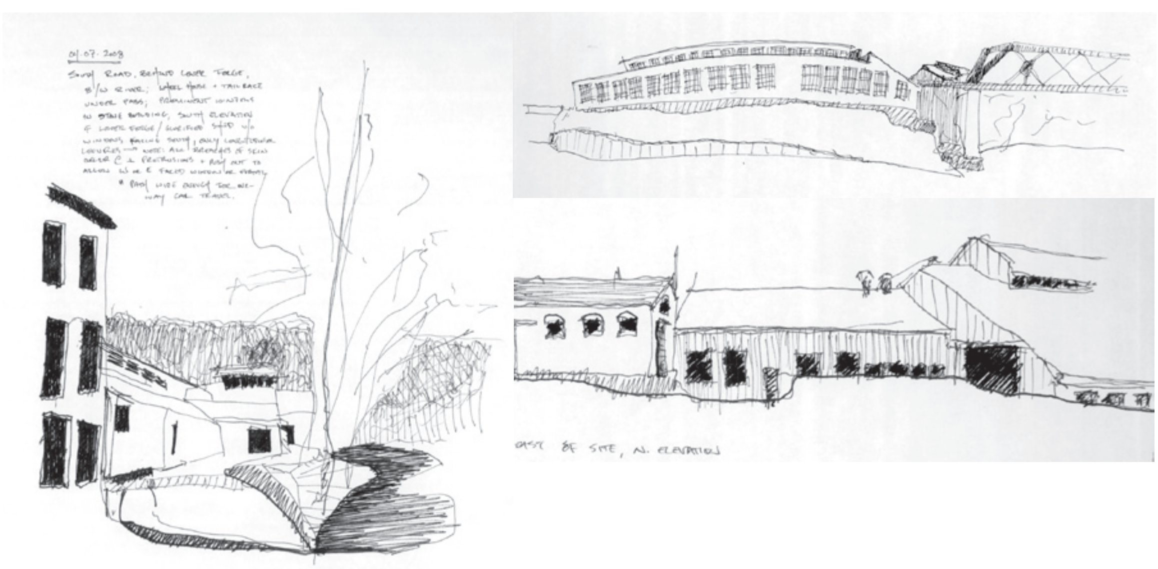
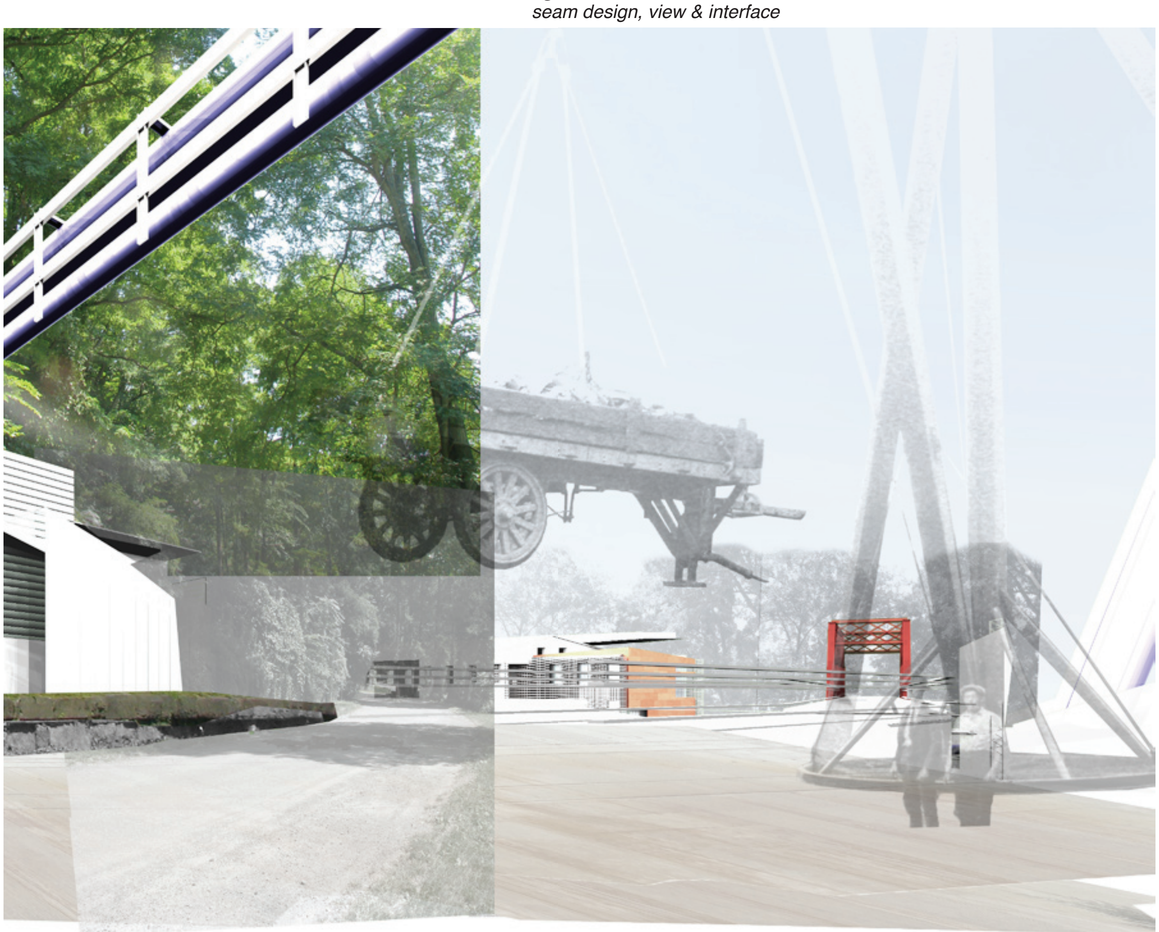


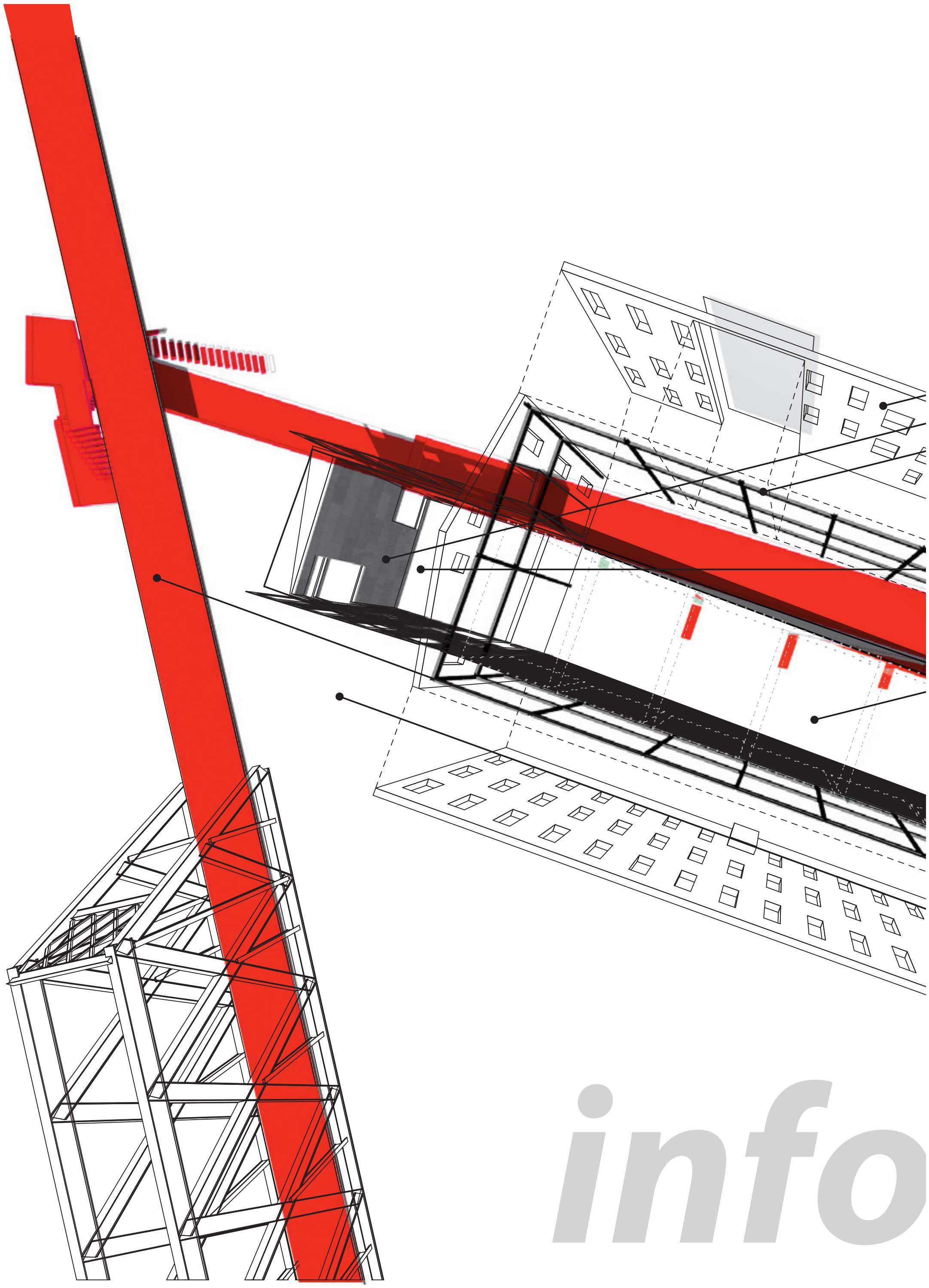
figure 70
existing conditions

figure 71 (middle)
proposed town-side interface

figure 72 (bottom)
proposed industry-side view

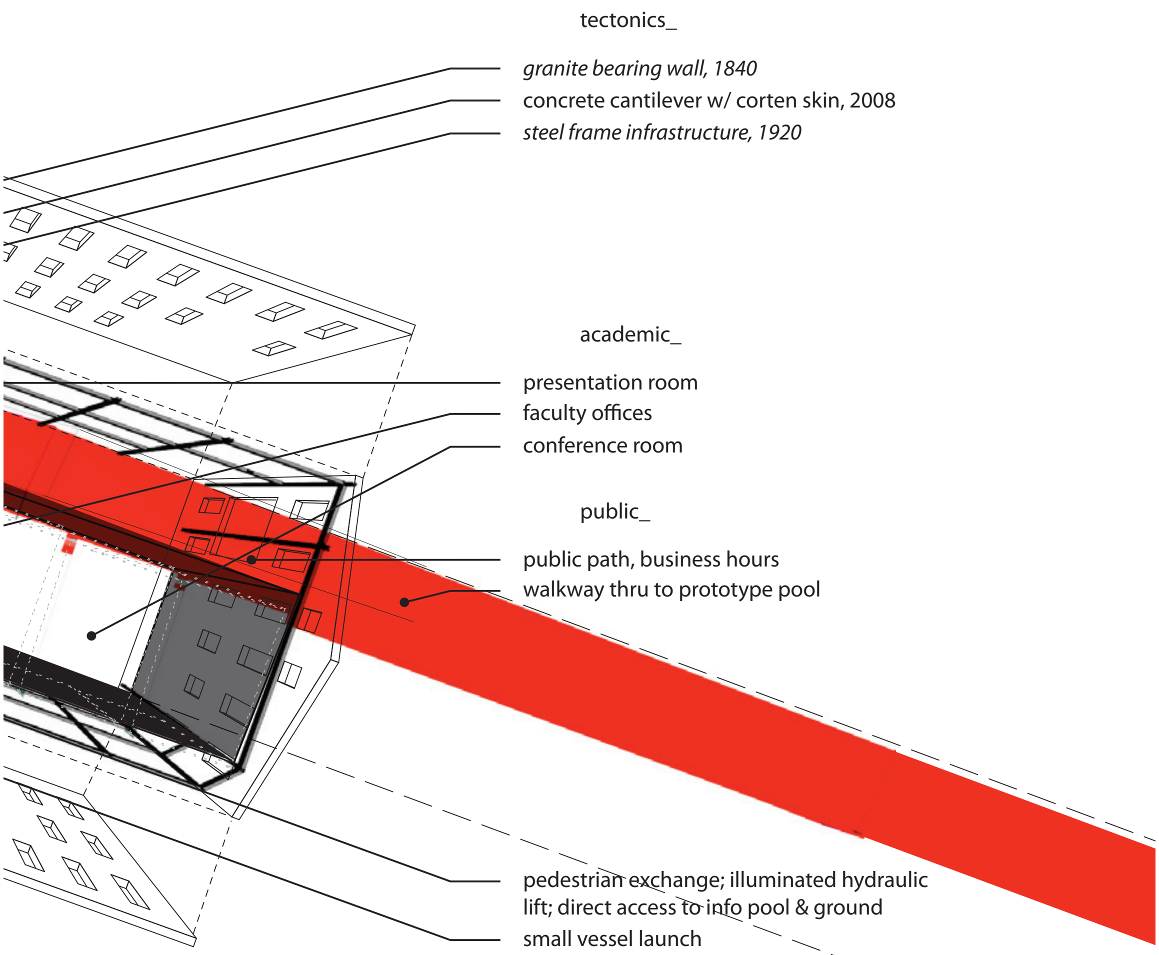
figure 73
seam design, view & interface





info

figure 74
program & seam diagram



rmation pool

information: (tactic) access-industry

movement systems (analysis of existing/idealized conditions via plan & experiential mapping) – gateway/portal/threshold, programmatic configuration of building + site (tactic derived from “flowage” analysis)

material techtonics (analysis of existing conditions in granite building via photography and system diagrams) - external expression of internal re-configuration through tectonics

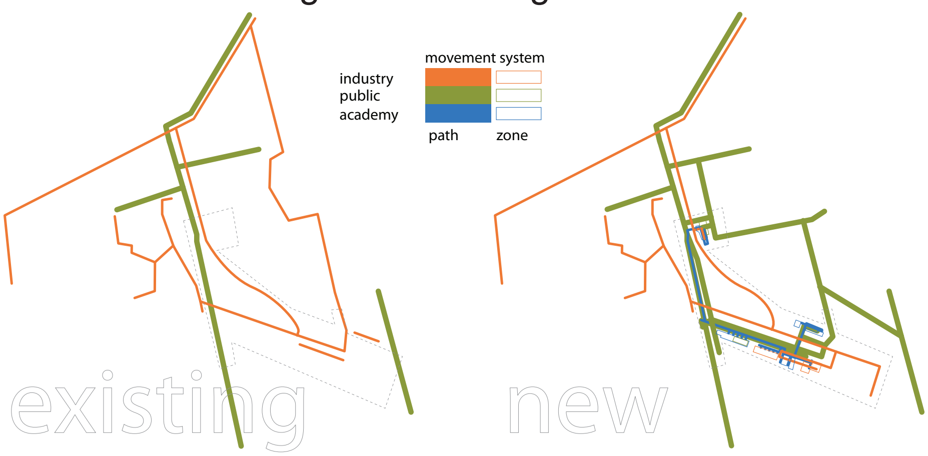
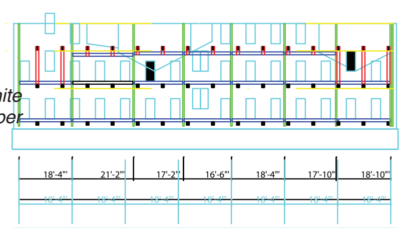
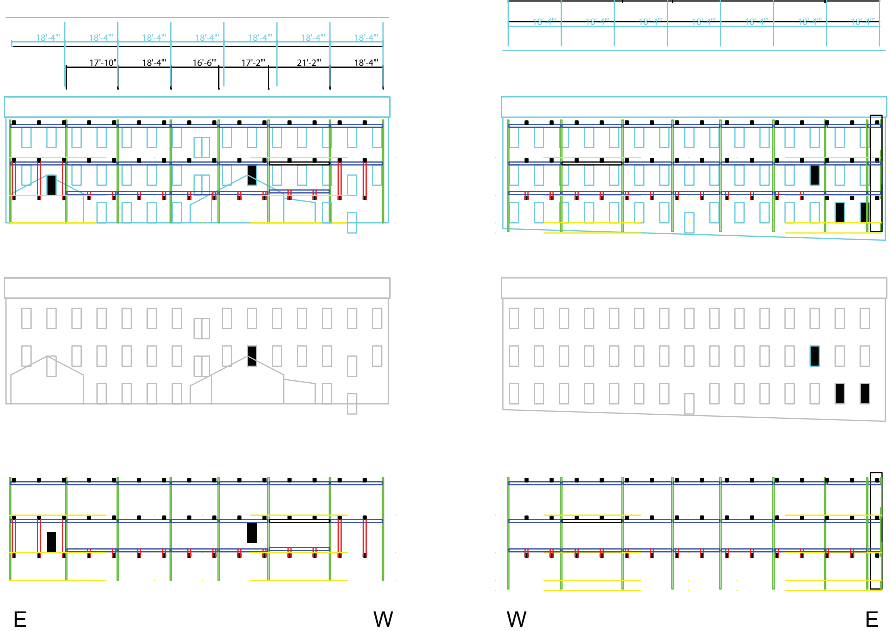


figure 75
movement systems

figure 76
material tectonic formal analysis of existing Granite Building structure, hybrid original granite walls, timber posts and beams, and 1920’s riveted steel frame





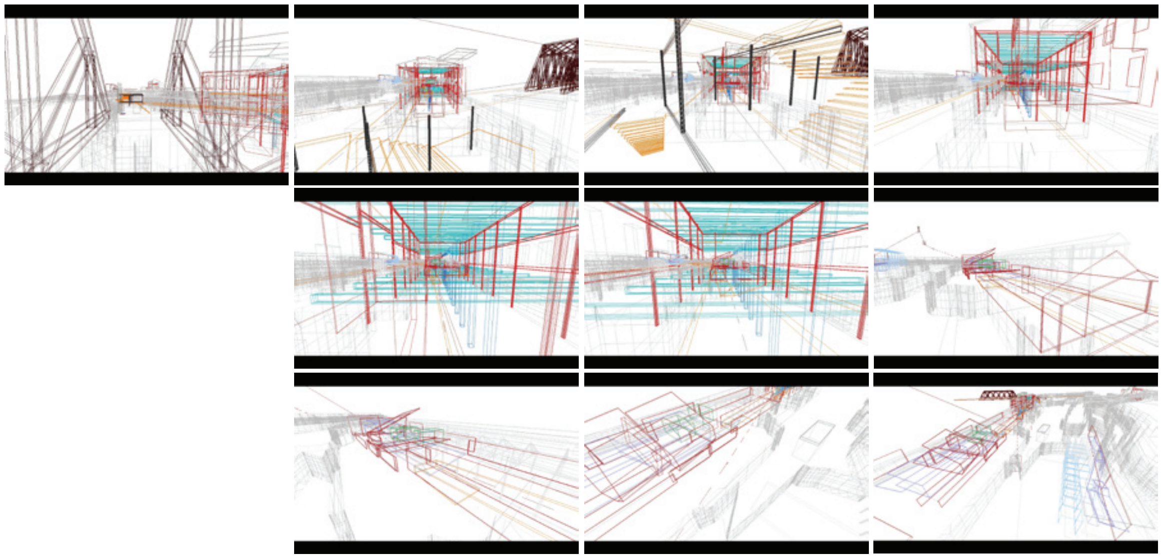
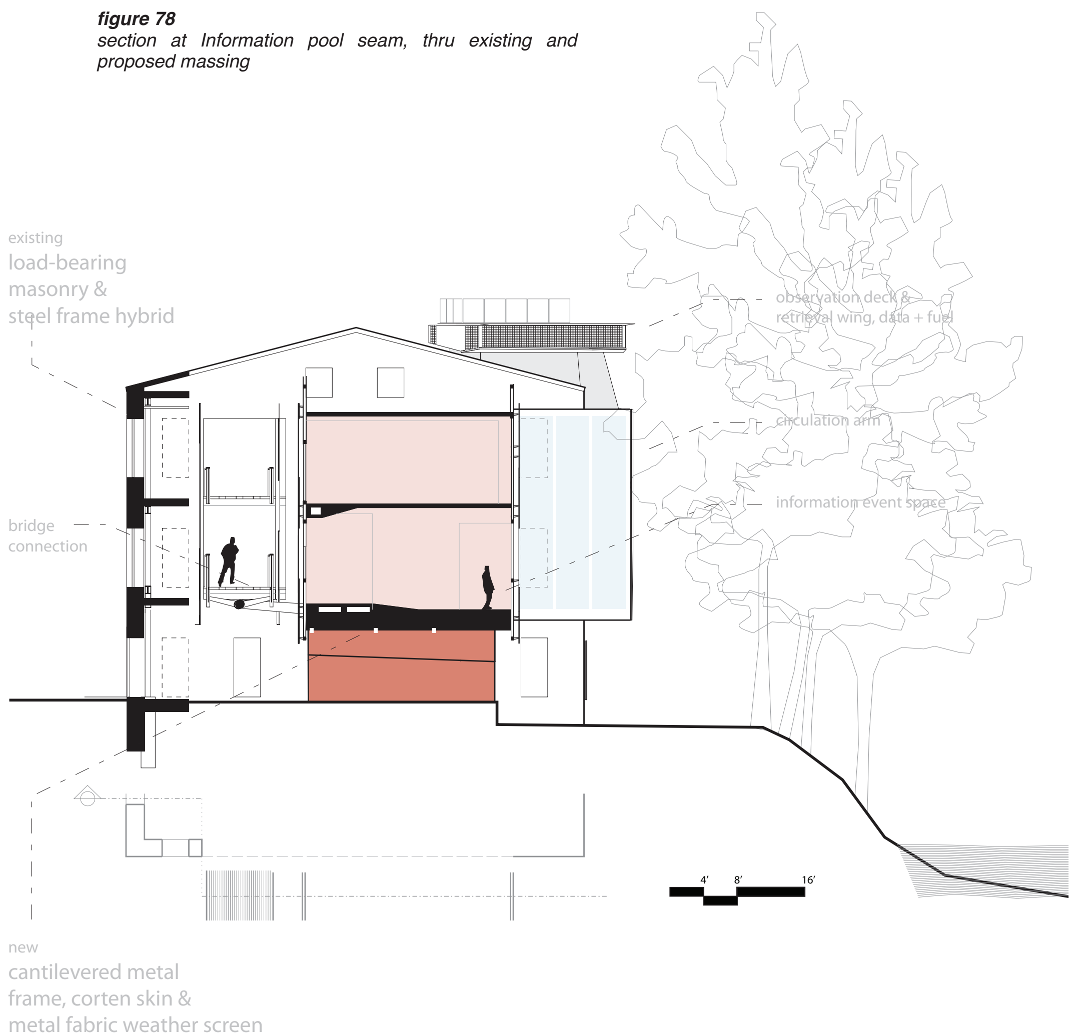


figure 77
frames of site animation, from bridge tectonic thru building tectonic via movement system

figure 78
section at Information pool seam, thru existing and proposed massing



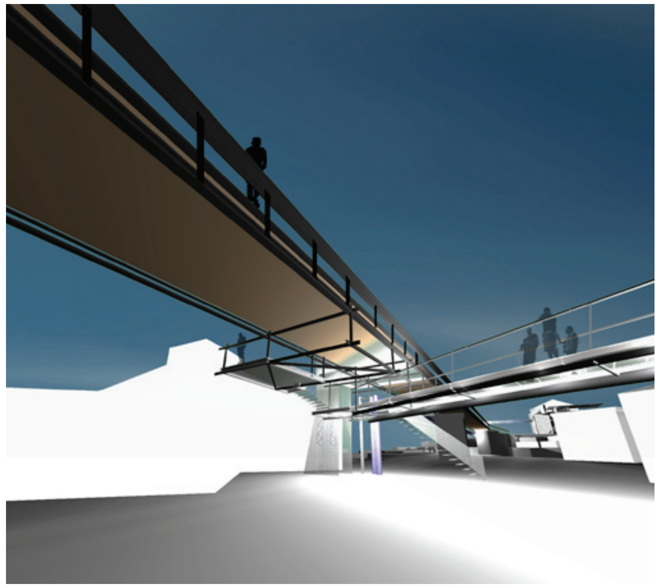


figure 79
experiential rendering

figure 80
experiential rendering

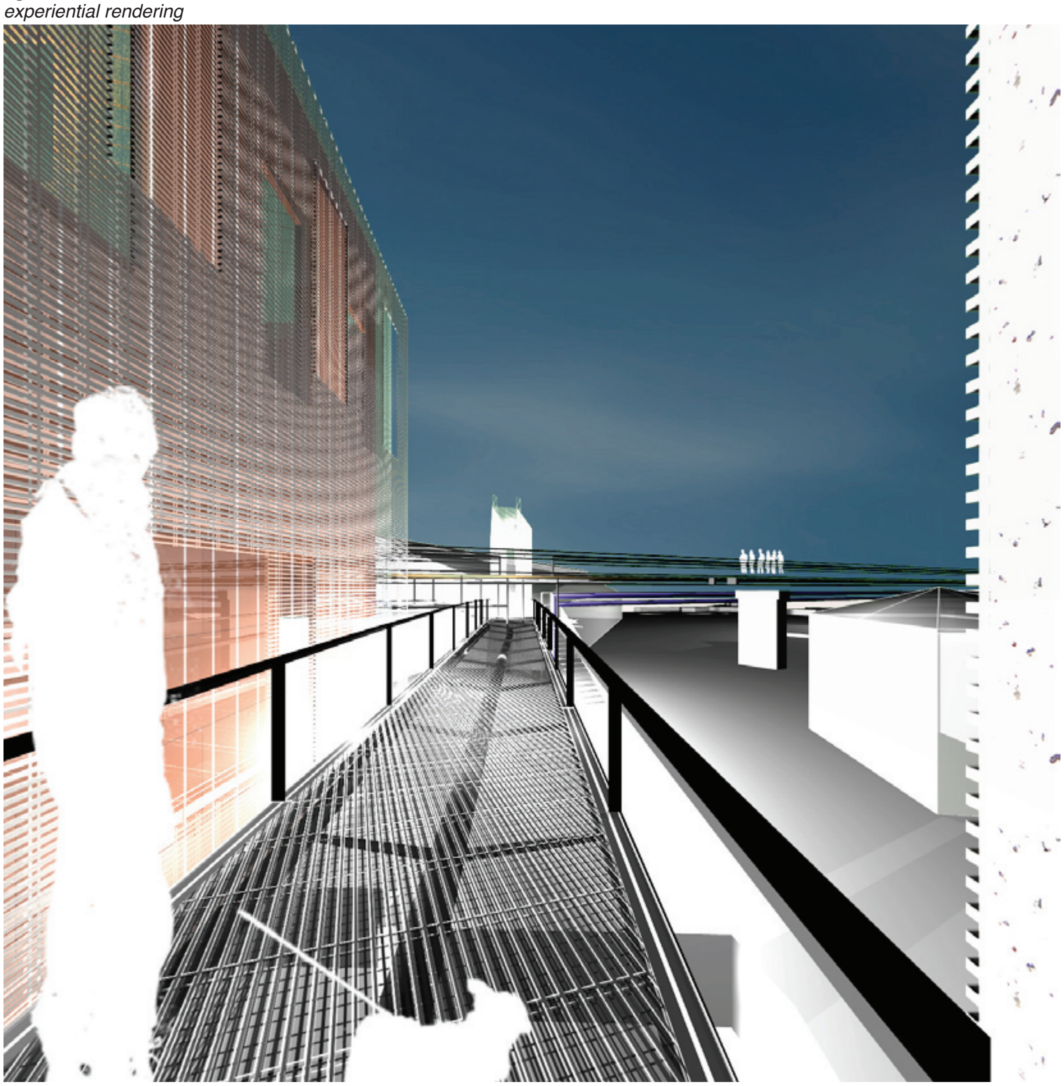
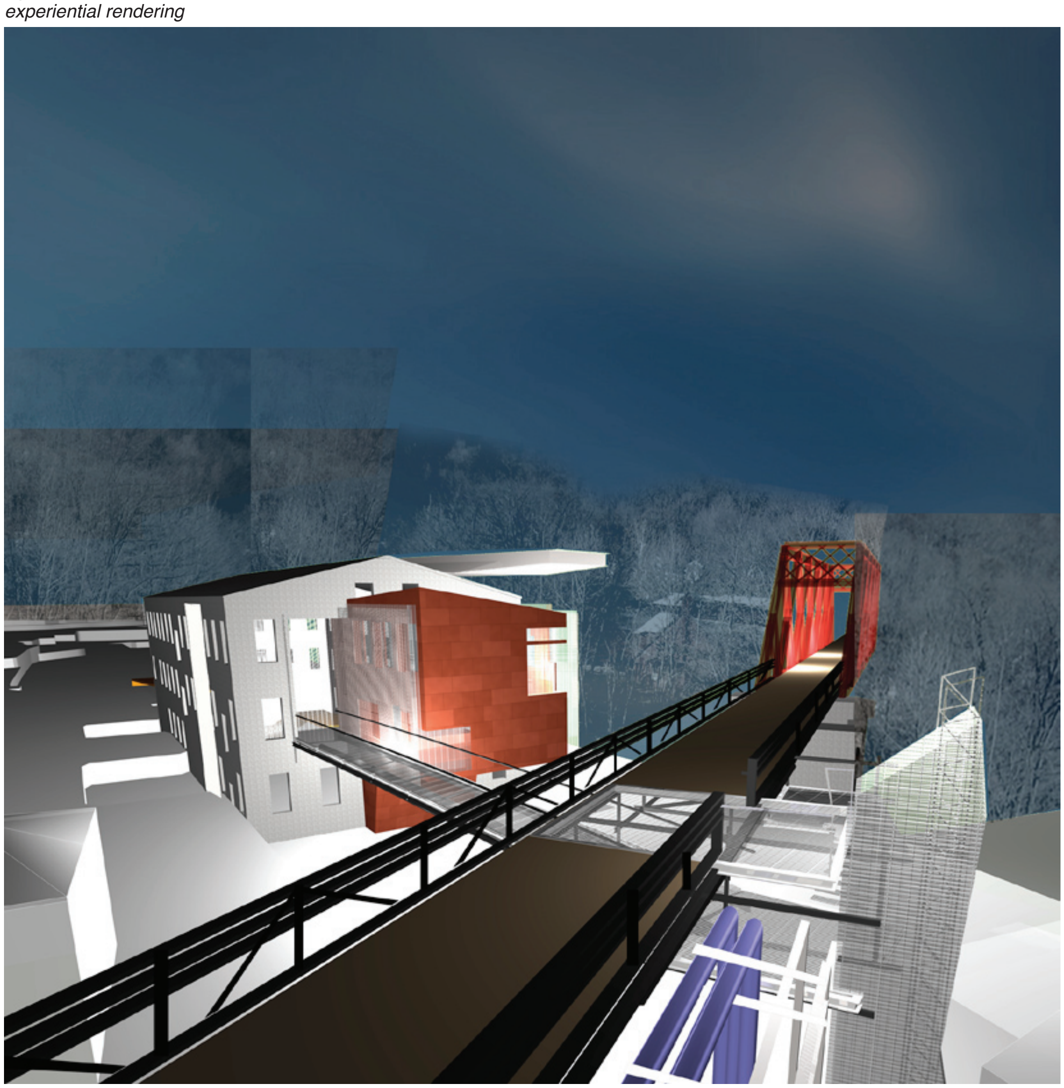


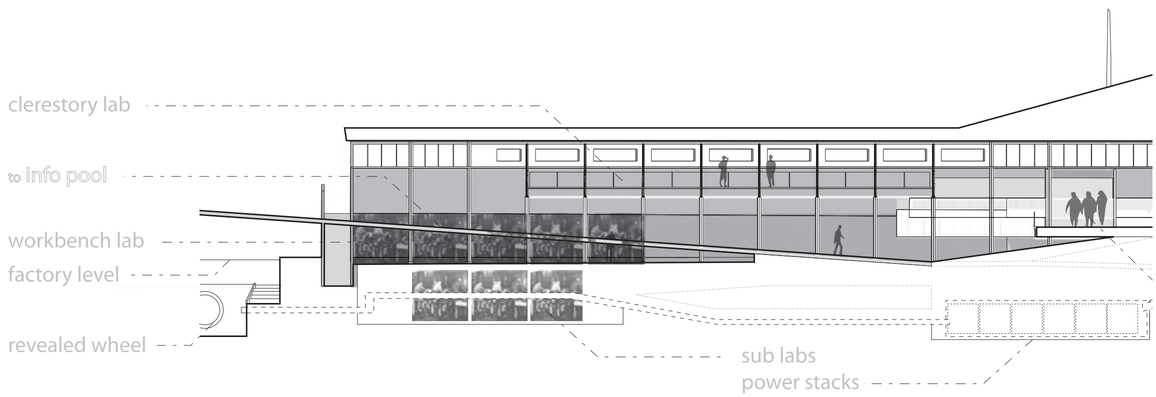
figure 81
existing condition of Information seam

figure 82
experiential rendering




info

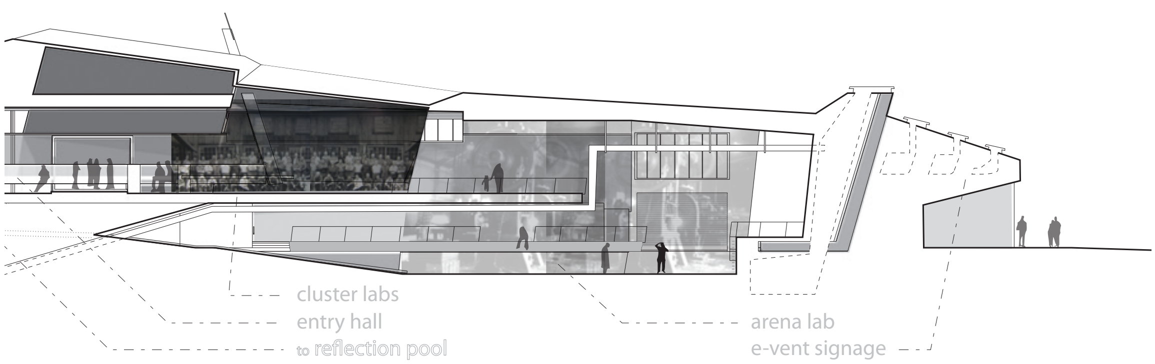
figure 83
experiential rendering



clerestory lab
to info pool
workbench lab
factory level
revealed wheel
sub labs
power stacks

pr

figure 84
Prototype program diagram



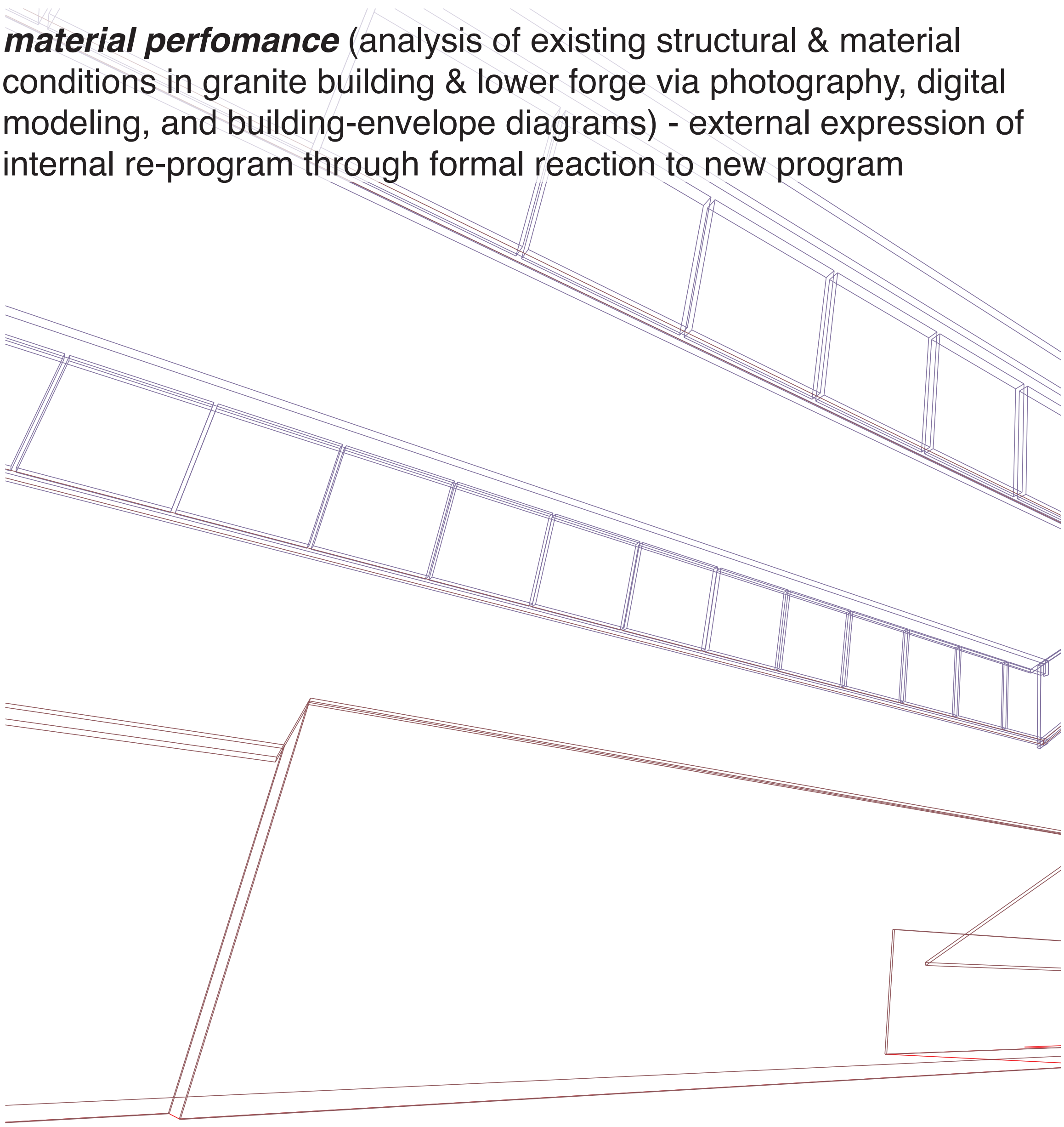
rototype pool

prototype: (tactic) industry-water

(cont) movement paths (analysis of existing/idealized conditions via plan & experiential mapping) – gateway/portal/threshold, programmatic configuration of building + site (tactic derived from "flowage" analysis)

industrial processes (research in program conditions) - external expression of internal re-program through formal reaction to new program; this functions as a control variable

material perfomance (analysis of existing structural & material conditions in granite building & lower forge via photography, digital modeling, and building-envelope diagrams) - external expression of internal re-program through formal reaction to new program



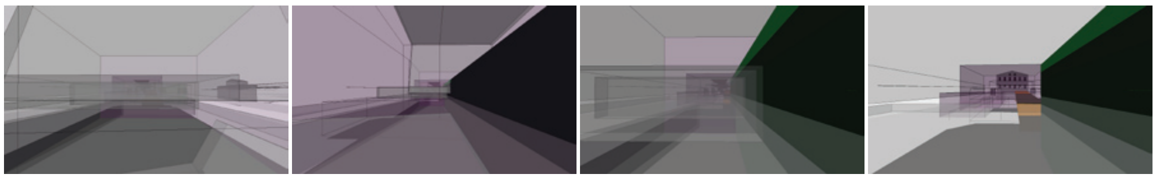
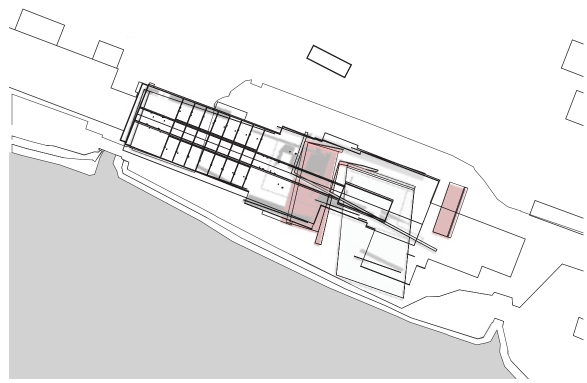
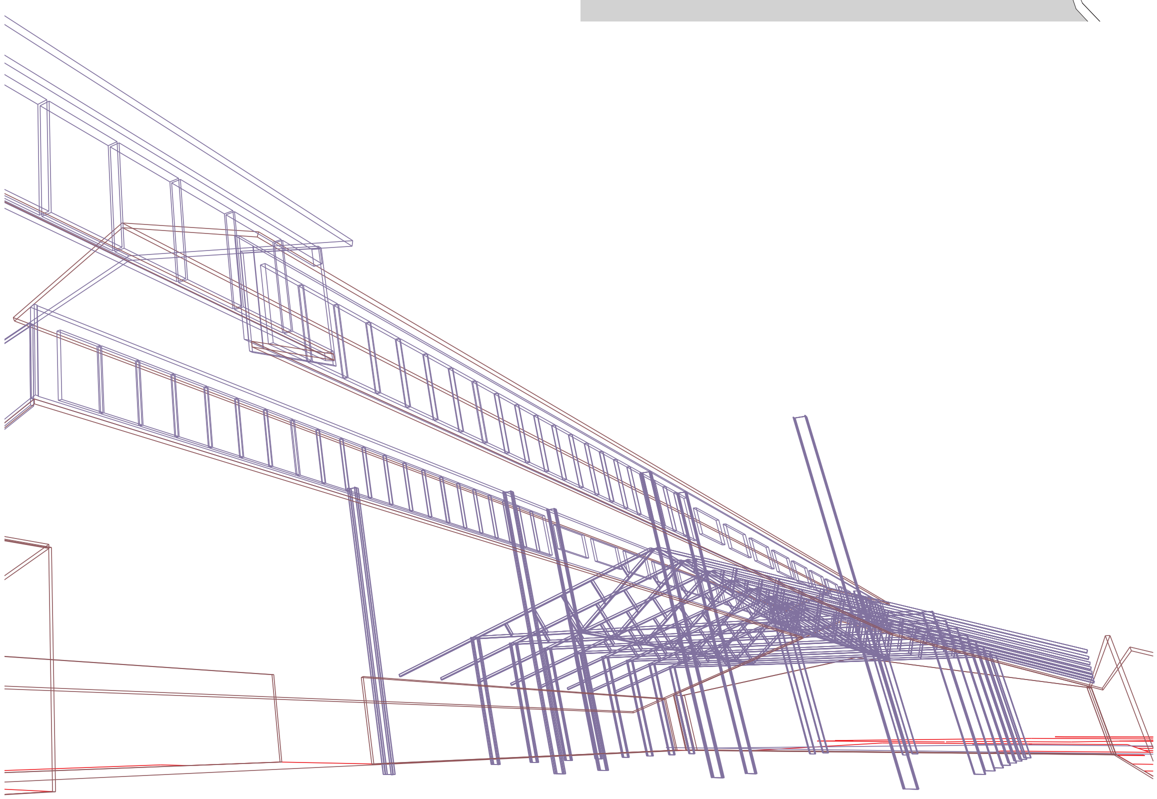


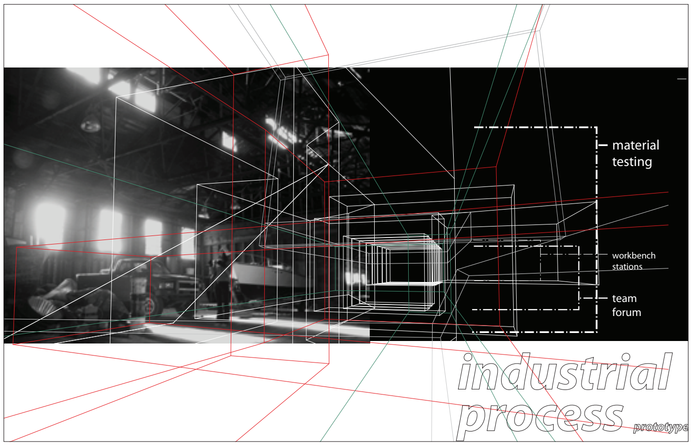
figure 85
Prototype program analysis, animation frames

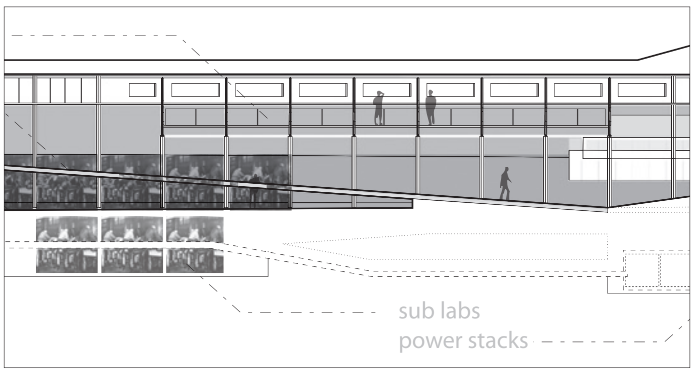
figure 86
Prototype program analysis diagram

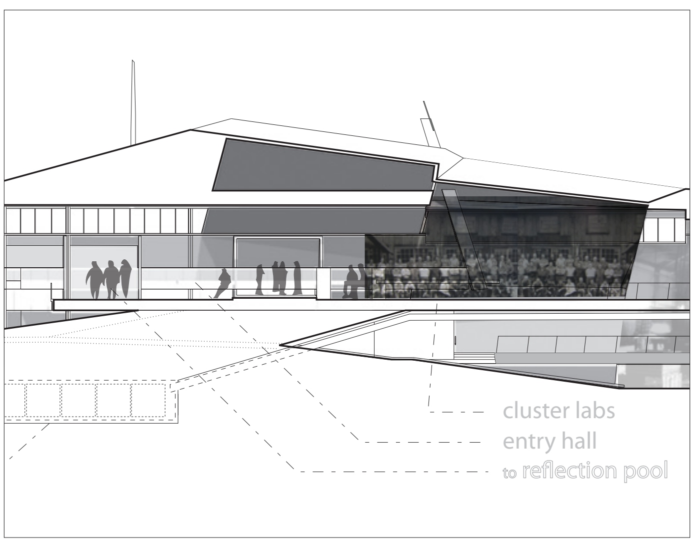
figure 87
Prototype existing conditions model











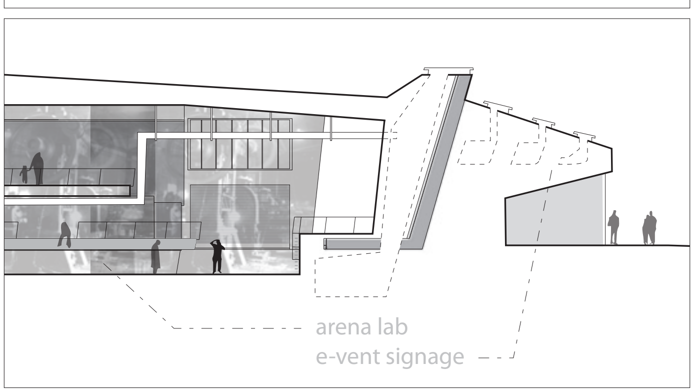


figure 88
industrial processes analysis, juxtaposed amongs exiting conditions

figures 89-91
proposed sectional manifestations of material performance response to new programmatic conditions

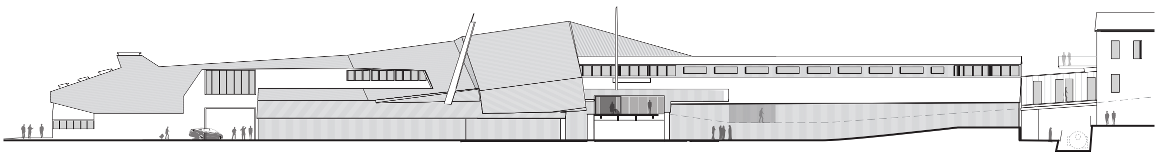


figure 92
proposed elevation, looking south

figure 93
existing elevation, looking south

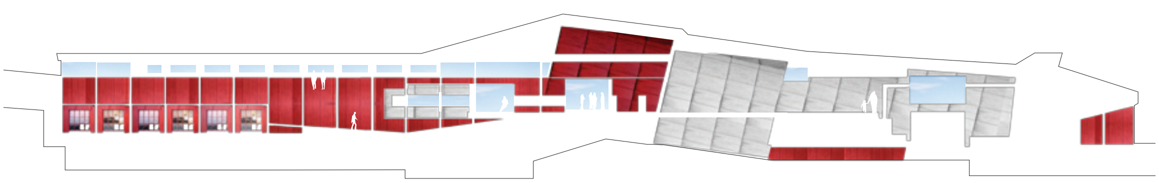


figure 94
proposed material performance

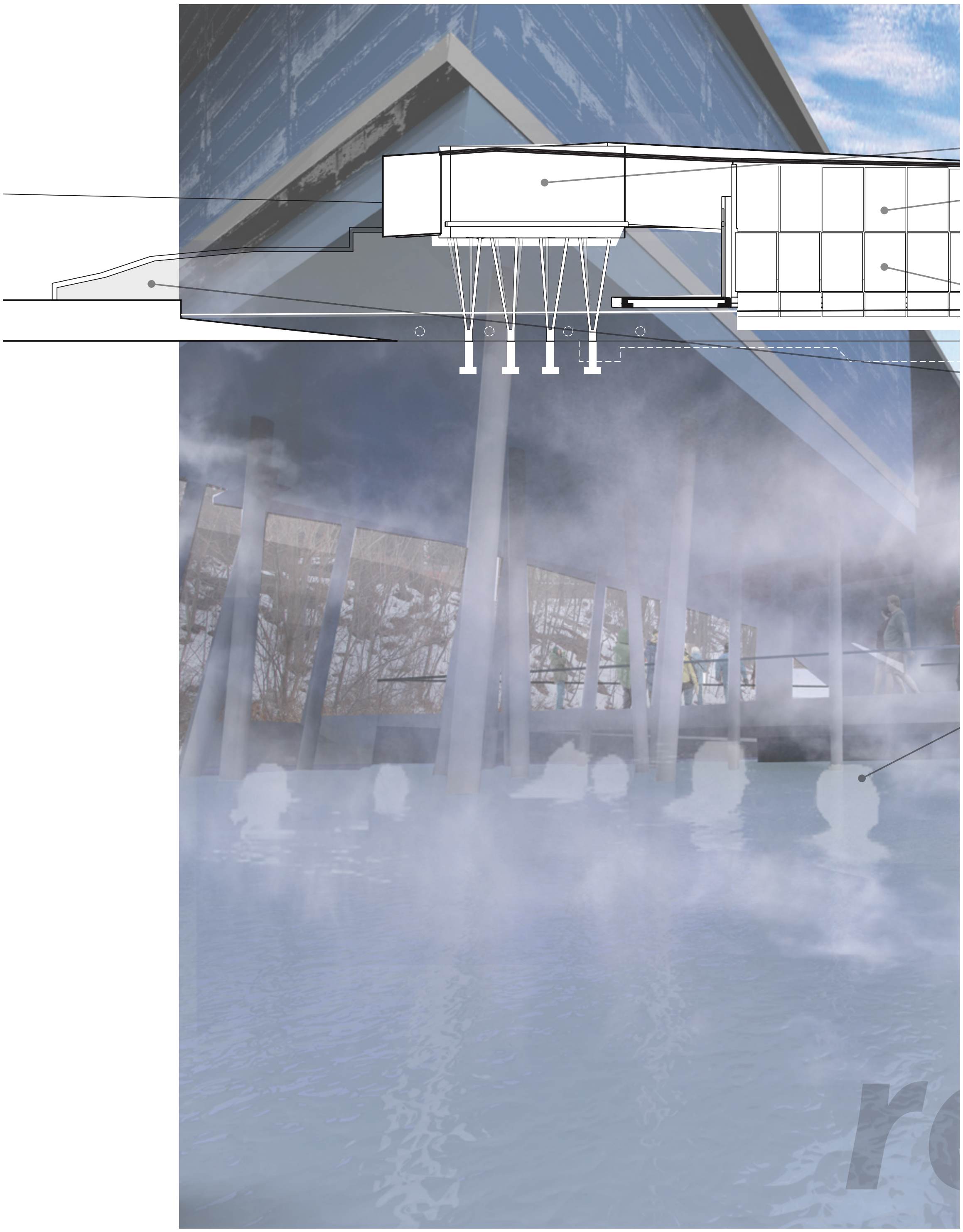
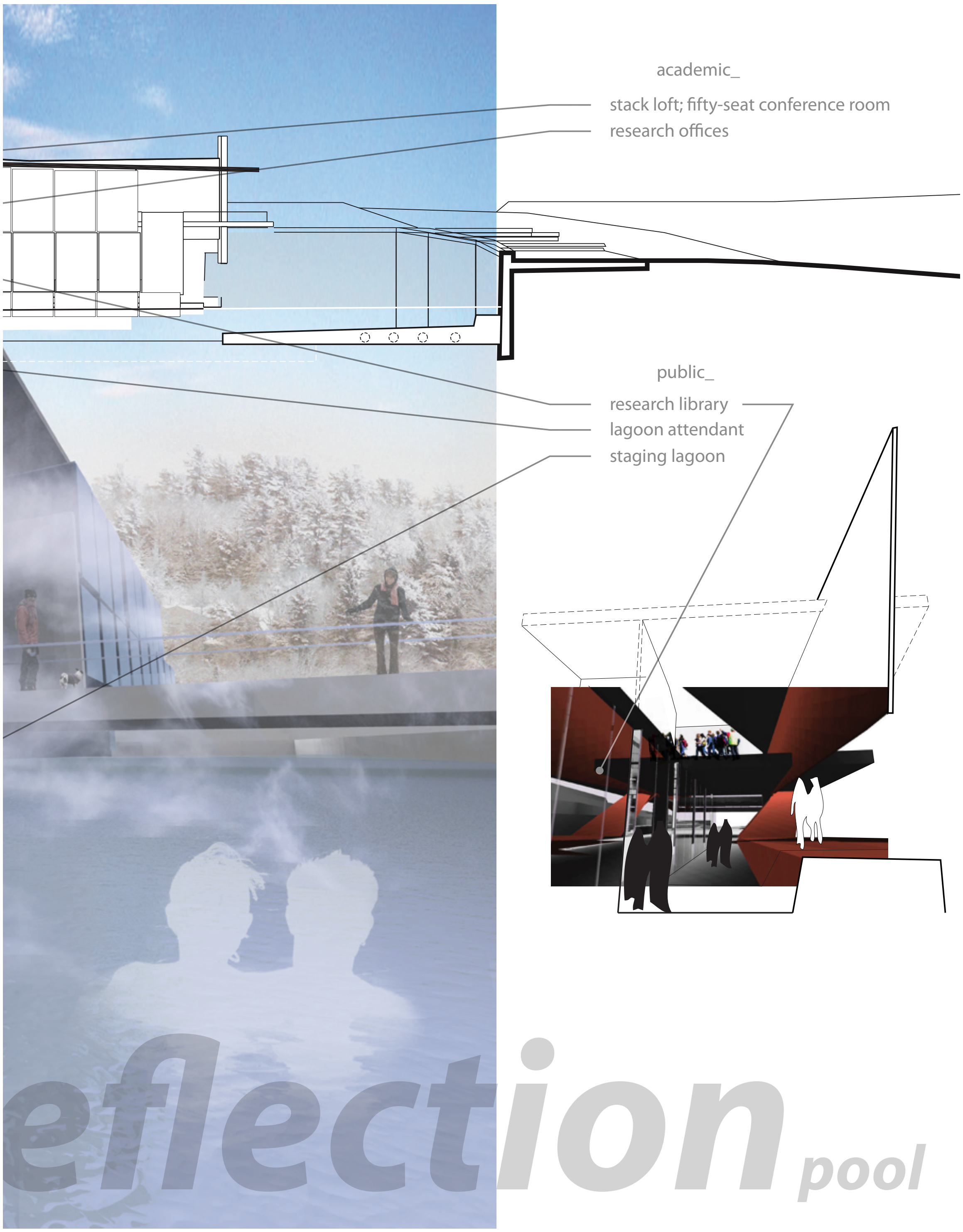

re

figure 95
Reflection pool program diagram



reflection: (tactic) town-industry

earth operations (analysis of historic & existing land conditions via plan, section, image, and sound) – definition of edge & path

water systems (analysis of historic, existing, and proposed canal conditions via plan, section, image, and sound) – essential expression of the re-purposing of the site & the transformation of its reason for being

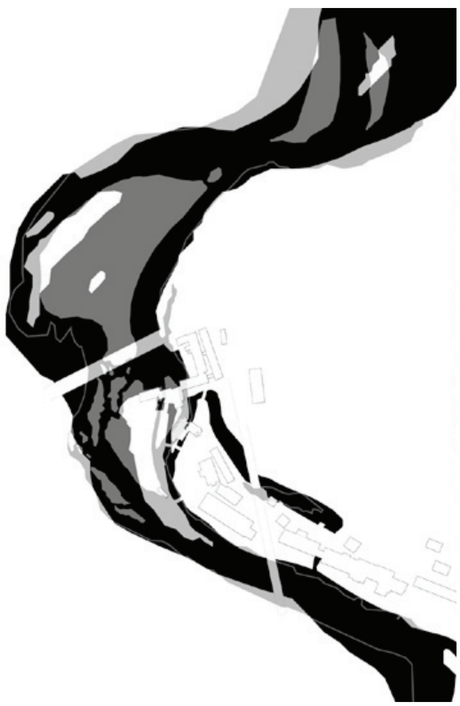


figure 96
river edge, 1820 & 2006

figure 97
composite earth operations

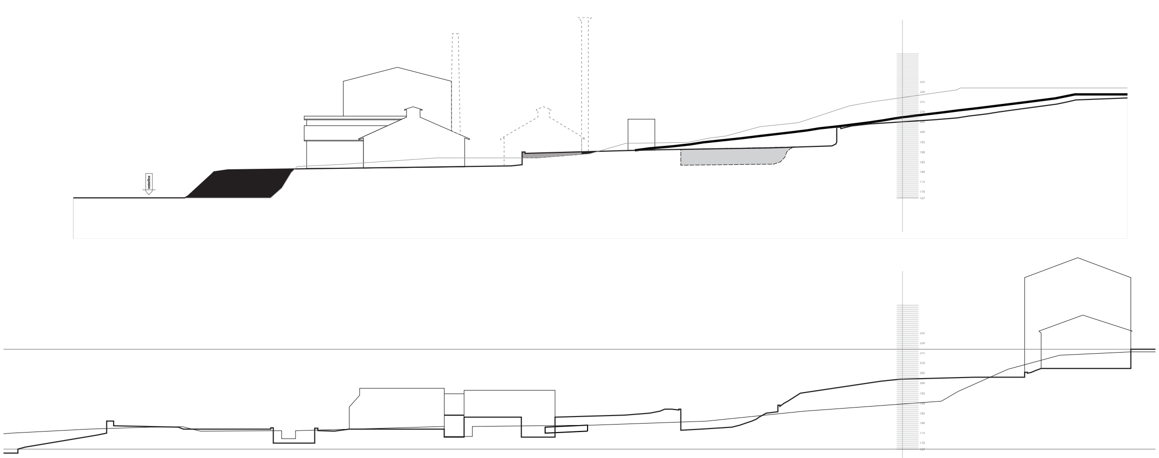
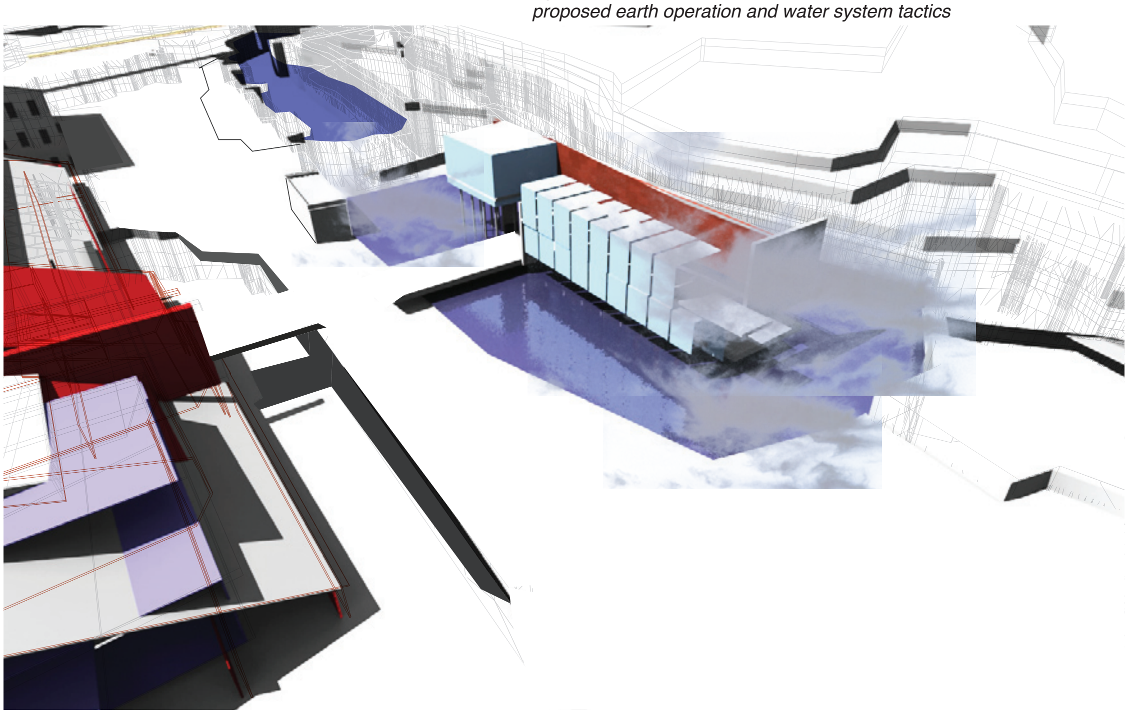


figure 98
canal condtions, 2007 & 1900

figure 99
proposed earth operation and water system tactics



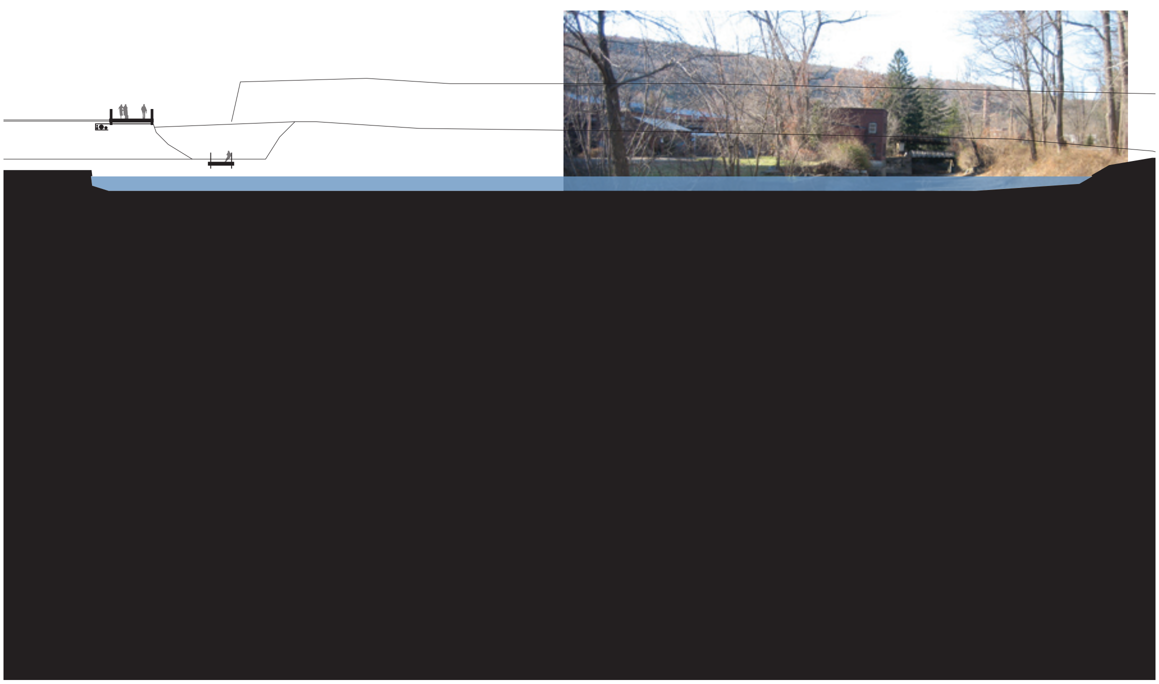
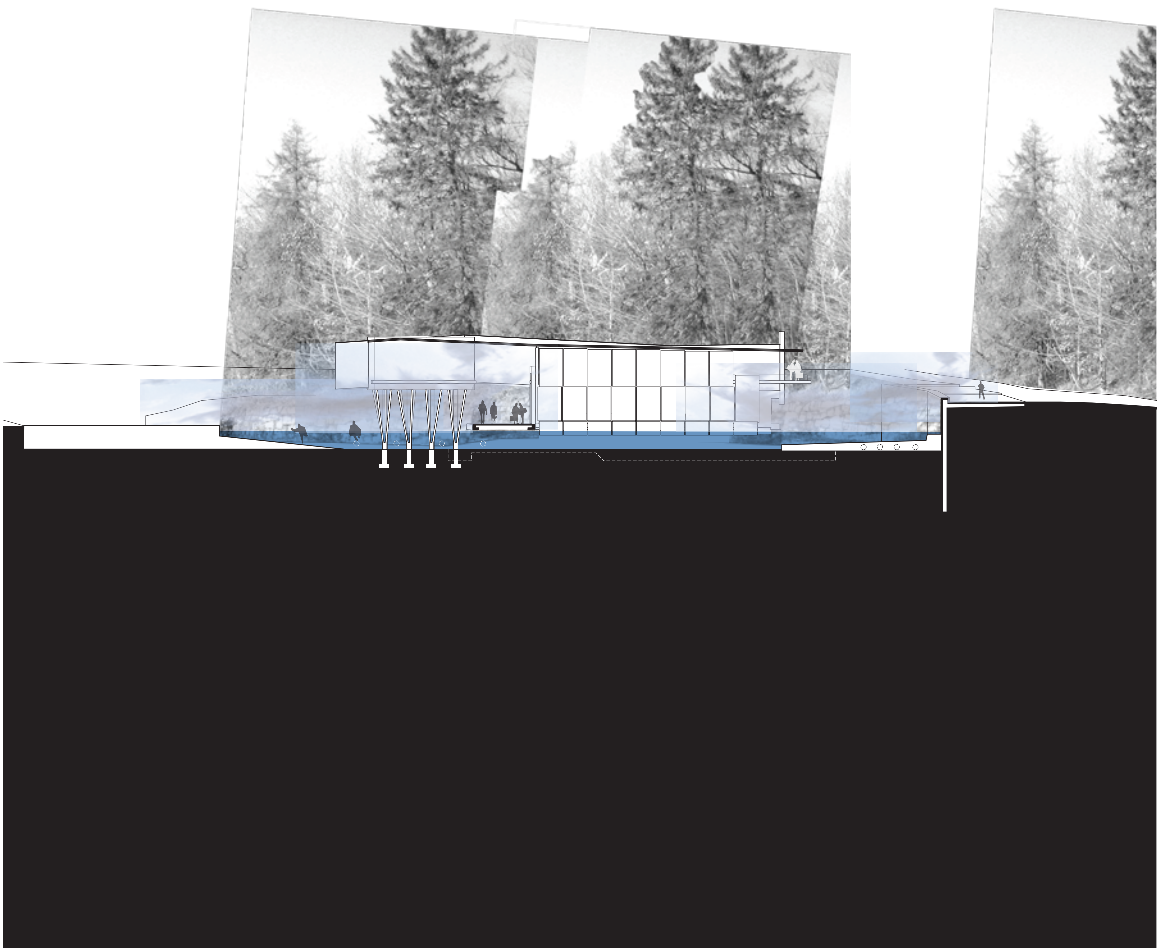
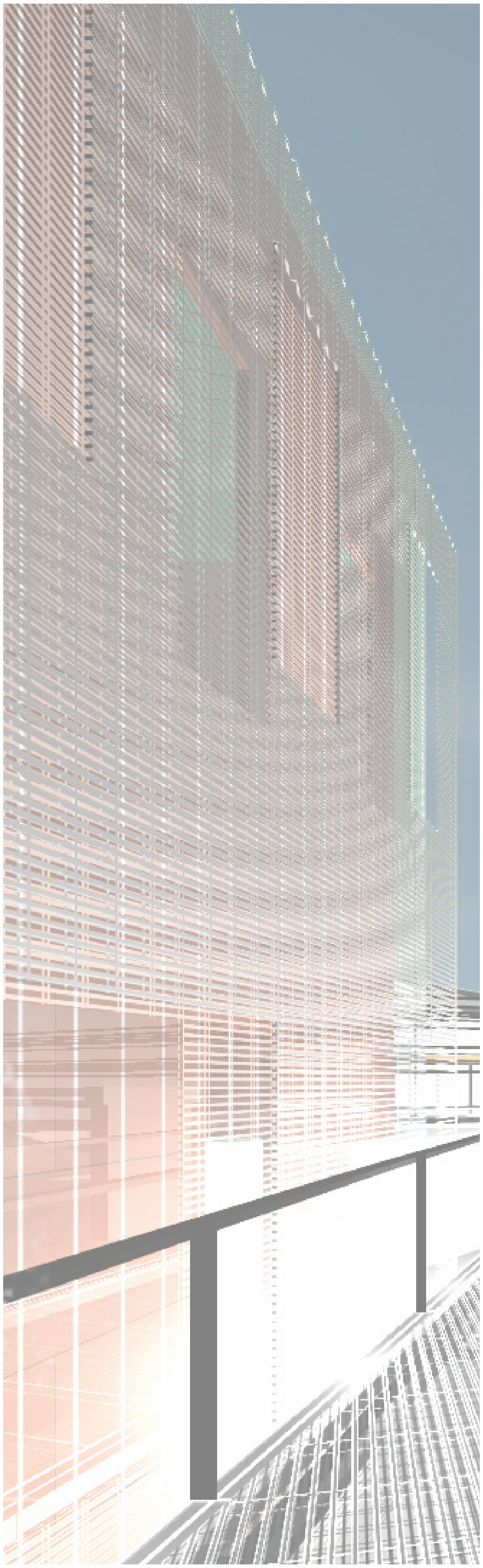


figure 100
Reflection, proposed seam





Design Conclusion

This design research demonstrates a methodology to which qualitative cultural patterns are made explicit to the design of architecture. In this process, the alibi of “pattern” provides a morphological and systemic rationale that engages the phenomenal, mythological, and scenographic qualities of place. Through this framework, the design methodology becomes implicitly defined by the necessarily expansive accommodation of complex data sets. While the exploration prioritizes the graphic translation of multi-dimensional conditions, the value of its incremental conclusions is not in the aesthetic of discovered image. Rather, the valuable output is in the identification of a wholistic intervention strategy and the aesthetic of its tactical manifestation.

The fundamental lesson of the design research is the conditioning of a trans-disciplinary concept to accomodate a specific architectural problem. In this case, it is the implementation of “pattern” as the adjoining

of autonomous pieces to create new multi-dimensional structured conditions. The embedded semantics of the applied concept enables discovery of first the identity of discrete entities among a complex context, then distinguish the role of non-architectonic structures in the process of architectural design. Through this deductive method of critical observation, the ethnographies of site and program can combine with documentation of extant traces of the built environment. The resulting production is therefore able to account for more comprehensive contextual parameters.

Also observed was the primacy of the indexical in architectural design analysis and production. The structural value of pattern recognition is most accessible through the non-semantical conventions of architectural representation, whereas documentation wholly semantical, or auto-contextual, may lead to false conclusions of “pattern-ness” in the sense that the discipline of architecture lacks a metric for its evaluation.

An understanding of the historical situation of this design research within the discipline of is critical to its future application. Despite the relatively esoteric nature of its lexicon, the principles of the intent share a universal application within the continuum of architectural theory and practice. Certainly the post-modern agenda of communicating meaning through symbol and aesthetics is fundamental, allowing as a design parameter the temporal, internal, and external performances of an environment. Clearly here is a situation where, in the pursuit of

an unassuming analysis, the unfamiliar input is empowered to produce an unfamiliar documentation, leading to invented analytical methods and an architecture that develops inherently from its context.

The presentation of this thesis is part of the necessary proof that the expansive, concept-based research has implications for architecture in the narrow sense. The four Pools, in their scenographic and diagrammatic manifestation, demonstrate real value in practical application. The intervention strategy is able to address complex conditions of extant or subjective quality, the configuration of multi-dimensional components, and address the aesthetic of supported events. This observation importantly biases against the non-valuable products, such as the figuration of two-dimensional images or of isolated parts.

_broader impact & for further development

1. learning conscientious methodology, refining the pedagogical environment to frame the development of implicit methodology (pedagogical implications of this experiment: condition, limit, rule, variable);

2. expressing the indicative properties of an experience more substantively than simply with the quantifiable;

3. refining the paradigm of architectural agenda to more willingly accept a broader spectrum of contextual complexities in a usable way, promoting re-making and re-purposing as the newest generation of Modernist thinking.

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